

DOCUMENT RESUME

ED 312 440

CE 053 523

TITLE Practical Arts Curriculum. Grades 8 and 9. Business Education, Personal and Public Services, Technical/Occupational. Integrated Occupational Program. Teacher Resource Manual. Interim.

INSTITUTION Alberta Dept. of Education, Edmonton. Curriculum Branch.

REPORT NO ISBN-0-7732-0084-3

PUB DATE 89

NOTE 523p.

PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052)

EDRS PRICE MF02/PC21 Plus Postage.

DESCRIPTORS *Business Education; Career Development; Educational Resources; Grade 8; Grade 9; *Integrated Curriculum; Junior High Schools; *Learning Activities; *Prevocational Education; Public Service Occupations; *Service Occupations; State Curriculum Guides; Teaching Methods; *Technical Occupations; Units of Study

IDENTIFIERS Alberta

ABSTRACT

This teacher's manual is designed to serve as a practical planning and instructional tool to assist teachers in implementing each of the three components of the Integrated Occupational Program in Practical Arts, Grades 8 and 9, in Alberta (business education, personal and public services, and technical occupations). Information on using the manual includes course sequencing; a matrix relating thematic learning activities for the three courses to concepts, skills, and attitudes in five areas (career awareness, human relations, organization and planning, entrepreneurship, and work skills); and matrices relating the thematic units to occupational clusters with objectives and student activities. Following sections provide 10 resources and details on 22 teaching strategies. The bulk of the document presents learning activities for each of the three courses. The learning activities consist of grade level, time, learning objectives, concepts and activities, student and teacher resources, teacher background information, teacher and student activities, information sheets illustrated with line drawings, quizzes, and checklists. (KC)

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INTEGRATED OCCUPATIONAL PROGRAM

Teacher Resource Manual

ED312440

PRACTICAL ARTS GRADES 8 AND 9

- Business Education
- Personal and Public Services
- Technical/Occupational

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Teacher Resource Manual

Practical Arts

Grades 8 and 9

- **Business Education**
- **Personal and Public Services**
- **Technical/Occupational**

INTERIM – 1989

NOTE: This publication is a service document. The advice and direction offered is suggested only. Consult the Program of Studies/Curriculum Guide to identify the prescriptive contents of the Integrated Occupational Program Practical Arts, Grades 8 and 9 Courses.

Alberta Education Cataloguing in Publication Data

Alberta. Alberta Education.

Practical arts grade 8 and 9 : teacher resource manual : business education, personal and public services, technical/occupational.

ISBN 0-7732-0084-3

1. Vocational education -- Alberta I. Integrated Occupational Program II. Title.

LC1047.C2 A333 1989

375 0086

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ACKNOWLEDGMENTS

Alberta Education acknowledges with appreciation the contributions of the following individuals and school jurisdictions to the development and validation of this publication:

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INTRODUCTION

This *Teacher Resource Manual* (TRM) is designed to serve as a practical planning and instructional tool. It has been developed to assist teachers to implement each of the three components of the Integrated Occupational Program Practical Arts, Grades 8 and 9: Business Education, (Grades 8 and 9), Personal and Public Services, and Technical/Occupational.

The manual contains:

- information about program organization
- course sequencing
- information about cooperative planning
- suggestions on required and elective components
- suggested instructional strategies
- suggestions for community partnerships
- thematic learning activities.

USING THE MANUAL

ORGANIZATION OF THE PRACTICAL ARTS

Each of the three courses that comprise the Integrated Occupational Program (I.O.P.) Practical Arts, Grades 8 and 9, is addressed through a related theme. Each theme contains learning activities that provide the vehicle through which students develop the concepts, skills and attitudes outlined as generic learning objectives in the *Program of Studies/Curriculum Guide*. Additional learning objectives are stated in the introduction to each thematic learning activity.

The relationship among the three courses that comprise the I.O.P. Practical Arts, Grades 8 and 9, the themes, and the learning activities are shown in the chart on page 3.

COURSE SEQUENCING

The I.O.P. Practical Arts courses may be sequenced according to local needs; however, within the context of each course, the following suggestions are offered:

- generic concepts, skills and attitudes should be taught in the context of each thematic learning activity
- a thematic learning activity may be taught in the context of its related course or taught as part of one or both of the other two I.O.P. Practical Arts courses

Teachers are encouraged to adapt each thematic learning activity to the needs of their students, to the course context in which it is taught, and to the availability of facilities, resources and community partnerships.

I.O.P. PRACTICAL ARTS, GRADES 8 AND 9
A MATRIX OF COURSES, THEMATIC LEARNING ACTIVITIES, CONCEPTS, SKILLS AND ATTITUDES

COURSE	THEMATIC LEARNING ACTIVITY	SUGGESTED GRADE	CONCEPTS, SKILLS AND ATTITUDES				
			CAREER AWARE-NESS	HUMAN RELA-TIONS	ORG. AND PLAN.	ENTREP.	WORK SKILLS
BUSINESS EDUCATION	<u>ALL ABOUT BUSINESS</u>						
	Alphabetical Filing	8	X		X		X
	Career Planning	8-9	X	X	X		X
	Preparing to Keyboard	8	X		X		X
	Keyboarding: The Alphabetical Keyboard	8	X		X		X
	Telephone Directories: Who's Who and What's What?	8	X	X	X	X	X
	The Telephone: Making the Connection	8	X	X	X		X
	Keyboarding: Building Skills	9	X	X	X	X	X
	Keeping on Track: Specialized Filing Systems	9	X		X		X
	Operating a Small Business	9	X	X	X	X	X
	The Receptionist: Creating the First Impression	9	X	X	X		X
PERSONAL AND PUBLIC SERVICES	<u>SERVICE THAT MAKES A DIFFERENCE:</u>		X	X	X		X
	Food for Thought	8	X	X	X		X
	Introduction to Child Care	8	X	X	X	X	X
	Personal Grooming	8-9	X	X	X	X	X
	Safety and First Aid	8	X	X	X	X	X
	Sewing Skills: It's Sew Easy	8	X	X	X	X	X
	Baby-sitting: Certificate Course	9	X	X	X	X	X
	Consumerism: Buying for Profit	9					
	Party Time	9	X	X	X	X	X
	Service and Technology	9	X	X	X		X
	Smile, You're a Tourist Attraction!	9	X	X	X	X	X
TECHNICAL / OCCUPA-TIONAL	<u>TECHNIQUES WITH TECHNOLOGY</u>						
	Getting Into the Picture	8	X	X	X	X	X
	Going in Circuits	8	X	X	X		X
	Heavy Metal	8	X	X	X	X	X
	Safety: The Tools of the Trade	8	X	X	X		X
	Wheeling and Dealing	8	X	X	X	X	X
	Design Technology	9	X	X	X	X	X
	Getting Into the Bigger Picture	9	X	X	X		X
	Give it the Gas: Building a Model Dragster	9	X	X	X	X	X
	Joining Forces: Constructing an Extension Cord	9	X	X	X	X	X
	Small Engine Maintenance	9	X	X	X	X	X

COOPERATIVE PLANNING

In schools where more than one teacher is responsible for providing instruction in the three I.O.P. Practical Arts courses, cooperative planning is essential. Teachers are encouraged to plan cooperatively to ensure that students develop an awareness of, and an appreciation for, the transferability, between courses and between occupational clusters, of the concepts and skills learned and the attitudes acquired.

REQUIRED AND ELECTIVE COMPONENTS

The complement of thematic learning activities taught in each of the three I.O.P. Practical Arts courses should enable students to achieve both the generic learning objectives outlined in the curriculum guide and the more specific learning objectives stated for each learning activity. In Grades 8 and 9, teachers are required to provide opportunities for enrichment and remediation through the elective component of each course. The recommended time distribution for each component of the courses is:

COURSE COMPONENT	PERCENTAGE TIME ALLOCATION	
	GRADE 8	GRADE 9
Generic Learning Objectives	55%	50%
Thematic Learning Objectives	25%	30%
Elective Component	20%	20%

The elective component of each course may take the form of:

- Enrichment Activities
 - additional teacher developed thematic learning activities
 - additional community partnerships including mentorships, job shadowing, customer services, and so on
 - student initiated learning activities
- Remediation Activities
 - alternative teacher developed thematic learning activities
 - reinforcement and review of specific concepts, skills and attitudes
 - additional community partnerships including mentorships, job shadowing, customer services, and so on

PLANNING A THEMATIC UNIT

Themes parallel each other in their structure, and include the following components:

- an overview which provides:
 - thematic objectives
 - process objectives
 - attitude objectives
 - integration activities
- learning activities in Grades 8 and 9 that include:
 - learning resources
 - teacher background information
 - student activities
 - community partnership opportunities

Teachers are encouraged to examine each theme and its corresponding learning activities well in advance of instruction to ensure that all necessary materials have been obtained. The activities and suggestions provided within each theme are numerous. **Advance planning should include a synthesis of effective strategies from the teacher's repertoire of personal experience, with suggestions in the manual considered most appropriate to local needs.** In addition, advance planning will enable teachers to integrate the teaching and learning of the generic concepts, skills and attitudes in the context of each thematic learning activity. The Planning Matrix may be used for this purpose. (p. 6)

DEVELOPING INTERPERSONAL SKILLS

The practical arts program offers many opportunities for enhancing interpersonal skills among students. Student activities performed in group settings may afford opportunities to address social interaction. A strategy for systematically analyzing a social problem is provided in the Suggested Teaching Strategies section of this manual (SPOT: A Social Problem-Solving Strategy). This strategy helps students to identify:

- reasons for the difficulty/conflict
- strategies that may help to avoid the difficulty/conflict another time

Teacher-modelling and student use of this strategy may improve classroom climate, and enable students to gain confidence in their ability to interact effectively and communicate with one another.

DEVELOPING PROBLEM-SOLVING AND DECISION-MAKING SKILLS

Active participation of students is encouraged through the use of several problem-solving strategies as well as decision-making models. A problem-solving and a decision-making model is outlined in the *I.O.P. Practical Arts 8 and 9 Program of Studies/Curriculum Guide* and additional problem-solving models are suggested in the thematic learning activities.

Additional strategies designed to enhance students' thinking ability are identified throughout the *I.O.P. Practical Arts 8 and 9 Program of Studies/Curriculum Guide* and are included in this manual under "Suggested Teaching Strategies".

LEARNING RESOURCES

The basic and recommended learning resources for each of the three courses that comprise I.O.P. Practical Arts, Grades 8 and 9, are listed in the *I.O.P. Practical Arts 8 and 9 Program of Studies/Curriculum Guide*.

Additional learning resources listed in this document have been identified as potentially useful when integrating the instruction of the generic concepts with the thematic learning activities. Except where designated, these titles have not been evaluated by Alberta Education and their listing is not to be construed as an explicit or implicit departmental approval for use. These titles are provided as a service only, to assist local jurisdictions in identifying potentially useful learning resources. The responsibility for evaluation of these resources prior to selection rests with the local jurisdiction.

PLANNING MATRIX
IOP JUNIOR HIGH SCHOOL PRACTICAL ARTS
INTEGRATING GENERIC SKILLS* WITH THEMATIC LEARNING ACTIVITIES

WORK SKILLS:THEMATIC LEARNING ACTIVITIES	*GENERIC CONCEPTS, SKILLS AND ATTITUDES														
	CAREER AWARENESS					HUMAN RELATIONS			ORGANIZATION AND PLANNING				ENTREPRENEUR- SHIP		
	A	B	C	D	E	A	B	C	A	B	C	D	A	B	C
BUSINESS EDUCATION															
Alphabetical Filing	✓	✓	✓						✓	✓	✓	✓			
Career Planning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Preparing to Keyboard															
Keyboarding: The Alphabetical Keyboard															
Telephone Directories															
The Telephone															
Keyboarding: Building Skills															
Specialized Filing Systems															
Operating a Small Business															
The Receptionist															
PERSONAL AND PUBLIC SERVICES															
Food for Thought															
Introduction to Child Care															
Personal Grooming															
Safety and First Aid															
Sewing Skills															
Baby-sitting															
Consumerism															
Party Time															
Service and Technology															
Smile, You're a Tourist Attraction!															
TECHNICAL-OCCUPATIONAL															
Getting Into the Picture															
Going in Circuits															
Heavy Metal															
Safety: The Tools of the Trade															
Wheeling and Dealing															
Design Technology															
Getting Into the Bigger Picture															
Give it the Gas															
Joining Forces															
Small Engine Maintenance															

CONCEPTS, SKILLS AND ATTITUDES

The Practical Arts curriculum consists of a series of four groups of generic concepts, skills and attitudes and a fifth series of concepts, skills and attitudes identified as work skills.

The generic concepts, skills and attitudes include:

- Career Awareness
- Human Relations
- Organization and Planning
- Entrepreneurism.

The generic components of the curriculum are similar for each of the I.O.P. Practical Arts, Grades 8-9, courses -- Business Education, Personal and Public Services, Technical/Occupational. The generic concepts and skills that students learn and the generic attitudes they acquire are transferable to and applicable in the home, the school, the community, and the workplace.

The work skills addressed in each of the three Practical Arts courses are more specific to some occupational clusters than to others. The relationship of the course specific work skills, thematic learning activities, and the eight occupational clusters are outlined in the following chart.

The generic concepts, skills and attitudes presented in this manual correspond to those contained in the *Practical Arts 8 and 9 Program of Studies/Curriculum Guide*. They should be taught and reinforced in the context of each thematic learning activity in each of the three practical arts courses.

I.O.P. PRACTICAL ARTS, GRADES 8 and 9
MATRIX OF JUNIOR HIGH THEMATIC LEARNING ACTIVITIES AND
SENIOR HIGH OCCUPATIONAL CLUSTERS

THEMATIC UNITS		Suggested Grade	OCCUPATIONAL CLUSTERS							
THEMES • Work Skills	LEARNING ACTIVITIES		Ag	Bus	CF	CA	NR	PPS	TH	Tr
ALL ABOUT BUSINESS • Career Planning • Directory Usage • Keyboarding • Reception • Small Business Operations • Telephone Usage	• Alphabetical Filing	8	X	X	X	X	X	X	X	X
	• Career Planning	8-9	X	X	X	X	X	X	X	X
	• Preparing to Keyboard	8		X		X		X	X	X
	• Keyboarding: The Alphabetical Keyboard	8		X		X		X	X	X
	• Telephone Directories: Who's Who and What's What	8	X	X	X	X	X	X	X	X
	• The Telephone: Making the Connection	8	X	X	X	X	X	X	X	X
	• Keyboarding: Building Skills	9		X		X		X	X	X
	• Keeping on Track: Specialized Filing Systems	9	X	X	X	X	X	X	X	X
	• Operating a Small Business	9	X	X	X	X		X	X	X
	• The Receptionist: Creating the First Impression	9		X				X	X	X
SERVICE THAT MAKES A DIFFERENCE • Child Care • Consumerism • First Aid • Providing Service • Personal Grooming • Projecting Positive Images • Sewing	• Food for Thought	8						X	X	
	• Introduction to Child Care	8		X				X	X	
	• Personal Grooming	8-9	X	X	X	X	X	X	X	X
	• Safety and First Aid	8	X	X	X	X	X	X	X	X
	• Sewing Skills: It's Sew Easy	8		X		X		X	X	
	• Baby-sitting: Certificate Course	9		X				X	X	
	• Consumerism: Buying for Profit	9	X	X	X	X	X	X	X	X
	• Party Time	9		X				X	X	
	• Service and Technology	9		X				X	X	
	• Smile, You're a Tourist Attraction!	9	X	X	X	X	X	X	X	X
TECHNIQUES WITH TECHNOLOGY Material Usage • metals • plastics • woods Power Technology • electricity • small engines Graphics • drafting • photography	• Getting Into the Picture	8		X		X		X	X	
	• Going in Circuits	8	X		X		X		X	X
	• Heavy Metal	8	X		X	X	X			
	• Safety: The Tools of the Trade	8	X	X	X	X	X	X	X	X
	• Wheeling and Dealing	8								
	• Design Technology	9	X	X	X	X	X	X	X	X
	• Getting Into the Bigger Picture	9		X		X		X	X	
	• Give it the Gas: Building a Model Dragster	9	X		X	X	X			X
	• Joining Forces: Constructing an Extension Cord	9	X	X	X	X	X	X	X	X
	• Small Engine Maintenance	9	X	X	X	X	X	X	X	X

Key: Ag - Agriculture; Bus - Business and Office Operations; CF - Construction and Fabrication; CA - Creative Arts; NR - Natural Resources; PPS - Personal and Public Services; TH - Tourism and Hospitality; Tr - Transportation

CAREER AWARENESS

The concepts related to career awareness include:

- A. Occupational Clusters
- B. Related Courses
- C. Jobs and Careers
- D. Lifelong Learning
- E. Job Search

The career awareness concepts are applicable to each of the courses that comprise the I.O.P. Practical Arts, Grades 8 and 9 (Business Education, Personal and Public Services, Technical/Occupational). The thematic learning activities in each of these courses provide the vehicle through which these concepts and their related skills and attitudes are learned. Each thematic learning activity is designed to:

- increase students' awareness of career options
- enhance students' ability to develop career plans and begin to climb a career ladder.

Teachers are encouraged to be flexible in their sequencing of the career awareness concepts. Presenting the concepts as integral components of each thematic learning activity will reinforce the skills and attitudes that relate to each concept.

RESOURCES

- Alberta Career Development and Employment Publications
 - e.g., – Occupational Profiles
 - *The Easy-to-Read Career Planning Guide*
- Business and trade journals
- Canadian Classification and Dictionary of Occupations (CCDO), Employment and Immigration Canada, Occupational and Career Analysis and Development Branch
- Careers Canada Services, Employment and Immigration Canada
- Career Selector Series, Ontario Ministry of Labour, Women's Bureau
- Careers Provincial Series, Employment and Immigration Canada
- Telephone and Business Directories
- Community partners

A. OCCUPATIONAL CLUSTERS

The purpose of this career awareness concept is to enable students to establish a context for the concepts, skills and attitudes that will be developed throughout each course and each learning activity in the I.O.P. Practical Arts.

Establishing an occupational context is important if subsequent learnings are to be meaningful to students.

GRADE 8	GRADE 9
A 1 Identifies the scope of occupational clusters available in local high schools	A 1 Selects occupational clusters for exploration in Grade 10
Concept, Skill and Attitude Development: High schools differ in the array of occupational clusters that are covered by their programs. Each high school will offer students the opportunity to explore, become oriented to, and prepare for a career in one or more of the following occupational clusters: ● Agribusiness ● Business and Office Operations ● Construction and Fabrication ● Creative Arts ● Natural Resources ● Personal and Public Services ● Tourism and Hospitality ● Transportation	Concept, Skill and Attitude Development: Students' awareness of the occupational clusters covered by programs in the local high school is enhanced through their continued exposure to teachers and students from the high school Students' ability to select one or more occupational clusters for exploration in Grade 10 is further enhanced through their participation and successful experiences in the thematic learning activities.
Student Activities: 1 Brainstorm to identify the scope of business/industry provincially and locally 2 Discuss the advantages and disadvantages of grouping occupations into clusters 3 Read trade and business journals and the local newspaper to increase awareness of range of businesses and industries provincially and locally 4 Complete a crossword related to the occupational clusters (See Suggested Teaching Strategies: "Crossword Puzzle") 5 Research and present information to the class on each of the eight occupational clusters (See Suggested Teaching Strategies: "LEEP, CHECK") Community Partnerships: 6 Visit local businesses and industries to gain awareness of job/career opportunities 7 Invite representatives from local businesses and industries to discuss career trends in their fields 8 Invite representatives from local labour groups to discuss present and future employment projections. (See I.O.P. Practical Arts Program of Studies Curriculum Guide, p. 39 for additional student activities)	Student Activities: 1 Investigate changes in local businesses and industries during the past year by comparing Yellow Pages, Purple Pages, observations 2 Continue to read trade and business journals and local newspapers 3 Lead a discussion on a business/industry topic or article taken from a journal or the local newspaper (See Suggested Teaching Strategies: "LEEP, CHECK") 4 Compile a crossword that includes clues, words and phrases related to each of the eight occupational clusters (See Suggested Teaching Strategies: "Crossword Puzzle") Community Partnerships: 5 Visit local high schools and discuss with the counsellor and teachers the courses offered and the occupational clusters to which they relate 6 Invite practical arts teachers and students in high school practical arts programs to discuss their high school's programs (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, p. 113 for additional student activities)

B. RELATED COURSES

The many different occupations available in the province have been categorized into eight occupational clusters. The purpose of this concept is to enable students to identify the occupational courses available in local high schools, to relate the courses to the occupational clusters, and, before the end of Grade 9, to be able to select two or more occupational courses to explore in Grade 10

Students' selection of occupational courses to explore in Grade 10 is dependent on a number of variables including:

- the occupational courses available in local high schools or through community partnership sites
- the quality of their experiences in Grades 8 and 9 practical arts courses
- their successful experiences in the thematic learning activities.

GRADE 8	GRADE 9
B 1 Identifies the range of related courses available in local high schools	B 1 Selects occupational courses for exploration in Grade 10
Concept, Skill and Attitude Development: High schools differ in the array of occupational courses they offer. The occupational courses offered will include some or all of the following:	Concept, Skill and Attitude Development: The availability of occupational course offerings in local high schools will affect the choice available to incoming Grade 10 students The occupational courses from which students may select two or more to explore in Grade 10 will include some or all of the following:
Agribusiness: • Agricultural Production • Agricultural Mechanics • Horticultural Service Construction and Fabrication • Building Services • Construction Services Natural Resources • Natural Resource Services Tourism and Hospitality • Commercial Food Preparation • Food Services • Maintenance and Hospitality Services	Business and Office Operations: • Business Services • Office Services Creative Arts: • Crafts and Arts • Technical Arts Personal and Public Services • Child and Health Care Services • Esthetology • Fashion and Fabric Care Services • Hair Care Transportation: • Automotive Services • Service Station Services • Warehouse Services

GRADE 8	GRADE 9
Student Activities: 1. Use Suggested Teaching Strategies: "PMI" to assist students explore the pros and cons of different courses in the context of local job/career prospects. 2. Develop a "first-letter mnemonic" or mnemonic clusters for the occupational clusters and their related courses. Community Partnerships 3. Establish mentorship and job shadowing placements 4. Invite graduates of the school to discuss "what I did when I graduated from junior high school". 5. Invite representatives from local employment offices and agencies to discuss employment prospects (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, p. 39 for additional student activities)	1. Discuss high school I.O.P. core requirements 2. Discuss the relationship between junior high practical arts courses and senior high occupational clusters 3. Use Suggested Teaching Strategies "SCAMPER" to generate course selection alternatives Community Partnerships 4. Visit the occupational and vocational labs in local high schools. 5. Obtain and read local high school's program booklets. 6. Establish buddy systems with high school students in occupational courses. 7. Invite high school occupational teachers and students to discuss their courses. (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, pp. 113, 115 for additional student activities)

C. JOBS AND CAREERS

Knowing the difference between a job and a career is important to all students. It is especially important to students in the Integrated Occupational Program

Students who develop the ability to recognize both the short-term advantages of different jobs and the long-term advantages of having a career plan are better able to focus their learning activities toward a career.

GRADE 8	GRADE 9
- C.1 Recognizes the differences between a job and a career. - C.2 Becomes aware of job and career potential in each occupational cluster	- C.1 Recognizes the value of short-term job and long-term career plan. - C.2 Identifies part-time jobs in the community. - C.3 Projects future career opportunities.

GRADE 8	GRADE 9
Concept, Skill and Attitude Development: A job is a certain kind of work, such as baby-sitting or car washing. A career is time spent in a number of progressively more important jobs within an occupation on an occupational cluster. The job and career potential of each occupational cluster is vast. Each occupational cluster may relate to one hundred or more jobs and careers. Job and career potential may vary in each community and in different areas of the province; e.g., agricultural areas, natural resource areas, large retail service areas, etc. It is important to recognize that career planning should include the possibility of having to move to different areas of the province, country, or the world.	Concept, Skill and Attitude Development: A job may provide both short- and long-term advantages. Conversely, a job may be advantageous in the short term but prove to be disadvantageous in the long term. Short-term advantages: • more money to purchase things • new status as a worker Short-term disadvantages: • less time for school work • less time for socializing, hobbies and sports activities. Long-term advantages: • may lead to a career • provides a work reference. Long-term disadvantages: • may be a job without a future (a dead-end job). • may not provide transferable knowledge and skills. Part-time jobs may be advantageous in both the short and long term, or they may be advantageous only in the short term.
Student Activities: 1. Discuss: - "What does a job mean to you?" - "What does a career mean to you?" - "What is the difference between a job and a career?" 2. Map the careers that relate to two or more occupational clusters. 3. Select two career areas and map the jobs that may be related to each of them. 4. Discuss: "What alternatives to part-time work are there in the community to obtain useful job/career related experience? (e.g., volunteer work, youth group and sports activities, church choir, etc.)" 5. Check the classified job advertisements in the local newspaper regularly and keep a chart of jobs that relate to the course and to each thematic learning activities.	Student Activities: 1. Brainstorm: "What part-time jobs are available in the community?" 2. Discuss the short- and long-term advantages of different part-time jobs. 3. Map or categorize, in writing, the advantages and disadvantages of different part-time jobs. 4. Brainstorm: "What are the short- and long-term advantages and disadvantages of being a volunteer?" 5. Draw a flow chart to show a possible career plan from present age to thirty years of age. Include part-time jobs, high school courses, further education and training.

GRADE 8	GRADE 9
Community Partnerships 6. Invite representatives from Alberta Career Development and Employment, private employment agencies, and local business and industry to discuss short- and long-term job/career prospects in different fields. (Use Suggested Teaching Strategies: "Listening Guide".) 7. Through field experience activities, identify at least three careers and six jobs that are related to each of the thematic learning activities. (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, p. 41 for additional student activities.)	Community Partnerships 6. Visit local businesses and industrial worksites and discuss the short-term job and long-term career prospects in each field. 7. Initiate community partnership activities (job shadowing, mentorship, etc.) 8. Maintain a log of observations, questions, concerns, and topics for discussion from each community partnership activity. (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, pp. 117, 119 for additional student activities.)

D. LIFELONG LEARNING

According to John Dewey, "Education is life, not just preparation for life". Lifelong learning has become a pursuit of an increasing number of people of all ages.

The early appreciation of the value of lifelong learning will assist students to develop a career plan that contains both short- and long-term goals.

The concepts, skills and attitudes developed in the concept of lifelong learning include:

GRADE 8	GRADE 9
D.1 Defines and describes lifelong learning. D.2 Associates continuing education opportunities with occupational clusters.	D.1 Recognizes the value of lifelong learning. D.2 Identifies opportunities for continuing education.
Concept, Skill and Attitude Development: The concept of lifelong learning is related to career awareness and career planning. Lifelong learning is a concept and a practice that can be applied in the home and the community, as well as in the workplace.	Concept, Skill and Attitude Development: The need for lifelong learning may be difficult for Grade 9 I.O.P. students to accept. Their needs and wants may still be more closely associated with the short term rather than the long term. Ongoing references to continuing and further educational opportunities in areas of students' interest may help to reinforce the value of lifelong learning as an important part of each person's career plan.

GRADE 8	GRADE 9
Concept, Skill and Attitude Development (continued): Continuing and further education courses are open to people of all ages and are designed to meet a wide variety of interests. In the context of lifelong learning, it may be said that while there may be a good excuse for not knowing, there is seldom a good excuse for not wanting to know.	Concept, Skill and Attitude Development (continued): Local colleges, schools, university extension centres, and provincial institutes of technology offer courses that relate to many of the eight occupational clusters.
Student Activities: 1. Discuss: "What does lifelong learning mean?" 2. Brainstorm and categorize responses to the question: "What courses might be helpful to workers in each of the eight occupational clusters?" 3. Discuss: "What type of courses may help a worker in (<u>three selected occupations</u>) improve his or her wages and chances of promotion?" 4. Use the Suggested Teaching Strategies: "PMI" to explore the plus, minus and interesting characteristics of participating in lifelong learning activities: • while still at school • when in the workforce. 5. Role play a teacher on the first night of an evening class. Explain to the class why you are so glad to see them. (Have class members use the Suggested Teaching Strategies: "Speech Evaluation Guide" to provide feedback to the role player.) Community Partnerships 6. Visit one or more continuing or further education classes that relate to the course. Have students observe, record and later discuss their reactions to the teacher, the students, the course content. (Use Suggested Teaching Strategies: "Listening Guide".) 7. Encourage students to interview their parents and relatives and identify those persons who have taken a continuing or further education course.	Student Activities: 1. Brainstorm: "What types of continuing or further education courses may help individuals to further develop their: • psychological abilities? • social skills? • emotional stability? • work skills?" 2. Research and identify the continuing and/or further education courses locally available that relate to the present course and its thematic learning activities: • Which institution is offering the courses? • Where are the courses offered? • How many classes are in each course? • What is the cost of each course? 3. Write a paragraph entitled "I would like to take an evening course in (<u>subject</u>), because". Community Partnerships 4. Invite a panel of people who have taken one or more continuing or further education courses to present opinions as to the value of these courses. 5. Encourage students to interact by asking such questions as: - Why did you take that course? - Would you rather have been doing something else? Why? - How old is the average person who takes a continuing or further education course?

GRADE 8				GRADE 9									
Student Activities (continued):				Student Activities (continued):									
E.g.,				6. Students with special abilities may offer their services to others; for example,									
<table><tr><th>Person</th><th>Age</th><th>Course Taken</th><th>Reason Why Course Taken</th></tr><tr><td>e.g., Father</td><td>40</td><td>Woodworking</td><td>general interest</td></tr></table>				Person	Age	Course Taken	Reason Why Course Taken	e.g., Father	40	Woodworking	general interest	• coaching a sport • helping others by demonstrating basic keyboarding skill development, model building, telephone techniques, image projection techniques, proper child care, etc.	
Person	Age	Course Taken	Reason Why Course Taken										
e.g., Father	40	Woodworking	general interest										
(See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, pp. 43, 45 for additional student activities.)				(See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, pp. 121, 123 for additional student activities)									

E. JOB SEARCH

Job search skills should be introduced early in the course and be reinforced in the context of each thematic learning activity.

Students should develop an ongoing appreciation that:

- job search is a process and not a single event
- job search skills, like all other skills, need to be learned through practice.

GRADE 8		GRADE 9	
E.1	Recognizes job search as a process.	E.1	Identifies forms and other written materials used in the job search process.
E.2	Identifies the basic parts of the job search process.	E.2	Identifies personal interests and abilities.
		E.3	Relates personal interests and abilities to job and career plans.
		E.4	Applies for part-time employment (paid or volunteer).

GRADE 8	GRADE 9
Concept, Skill and Attitude Development: Searching for a job, even a volunteer part-time job, is a process that involves a number of different steps, including: ● thinking about the work you want to do, both now and in the future ● identifying the things you like to do ● identifying the things you're good at doing ● exploring options ● making a decision about which job to pursue ● deciding how best to go after a job ● applying for the job ● accepting the job ● keeping the job. There are shortcuts that may be taken; however, experience indicates that failure to follow each of the nine steps, in sequence may result in failure to obtain and/or retain a good job; that is, one that has long-term advantages	Concept, Skill and Attitude Development: In order to obtain a job, a number of documents may have to be obtained, completed, and distributed. These documents include: ● résumés ● letters of application ● application forms ● letters of reference ● advertisements ● letters of acceptance and thanks. The job search process is part of a larger planning process. As people begin to develop new knowledge and skills, they also develop an increased awareness and appreciation of their ability to take on new and increased responsibilities. Therefore, the interests and abilities that a person identified a year ago may be different from their present interests and abilities. This change is related to the lifelong learning process.
Student Activity: Use activities suggested in the Thematic Learning Activity: "Career Planning". (See I.O.P. <i>Practical Arts Program of Studies/ Curriculum Guide</i>, p. 47 for additional student activities.)	Student Activity: Use activities suggested in the Thematic Learning Activity: "Career Planning". (See I.O.P. <i>Practical Arts Program of Studies/ Curriculum Guide</i>, pp. 125, 127 for additional student activities.)

HUMAN RELATIONS

The concepts related to human relations include:

- A. Personal Development
- B. Interpersonal Relationships
- C. Communications

The human relations concepts are applicable to each of the courses that comprise the I O P. Practical Arts, Grades 8 and 9 (Business Education, Personal and Public Services, Technical/Occupational). The thematic learning activities in each of these courses provide the vehicle through which these concepts and their related skills and attitudes are taught. Each thematic learning activity is, therefore, designed to enhance students':

- belief in their ability to succeed
- ability to interact with others
- ability to communicate verbally and non-verbally.

Teachers are encouraged to be flexible in sequencing the human relations concepts. Presenting the concepts as integral components of each thematic learning activity will reinforce the skills and attitudes that relate to each concept.

RESOURCES

- Alberta Career Development and Employment Publications
- Business and trade journals
- Case studies
- Community partners

A. PERSONAL DEVELOPMENT

One important purpose of the human relations concept is to help students improve their self-esteem. Building self-esteem may be viewed as a step-by-step process. In school, the process begins when students establish a sense of security, belonging and success. A sense of purpose and a goal-oriented perspective will be developed over time as students build confidence in their ability to successfully function in a variety of situations.

Assisting students to enhance their self-esteem is an integral part of the educational process.

GRADE 8	GRADE 9
A 1 Identifies personal strengths and limitations	A 1 Develops personal strengths
A 2 Recognizes the meaning and importance of "motivation", "initiative", and "responsibility"	A 2 Becomes aware of personal limitations
A 3 Identifies the implications of flexible, innovative and creative behaviours	A 3 Identifies personal goals
A 4 Recognizes the meaning and importance of "self-esteem"	A 4 Recognizes areas for potential growth
A 5 Recognizes the value of self-praise and criticism	A 5 Demonstrates responsible behaviour
A 6 Recognizes the importance of personal appearance	A 6 Demonstrates flexible, innovative and creative behaviour in appropriate contexts
	A 7 Exhibits pride in personal achievements
	A 8 Copes effectively with criticism and change
	A 9 Maintains a well-groomed appearance

GRADE 8	GRADE 9
Concept, Skill and Attitude Development: Self-esteem refers to an individual's self-respect, confidence, identity, and purpose. A student with a high level of self-esteem will usually be more productive than one who has a low self-esteem. Personal development is an interactive process. Students can be assisted to develop improved levels of self-esteem when the learning environment fosters a sense of: ● security ● identity ● belonging ● purpose ● personal competence (See Suggested Teaching Strategies: "Improving the Instructional Environment") Motivation, initiative, and responsibility result when students' self-esteem is improved and they are able to recognize and assess their strengths and limitations. Each person has the potential to think critically and to behave creatively. These behaviours are learned through ongoing practice and reinforcement. (See Suggested Teaching Strategies: "Reinforcing the Positive") People with high levels of self-esteem usually project a positive image to others. They feel good about themselves and when they look in the mirror and like what they see, they can say with honesty "I like myself".	Concept, Skill and Attitude Development: The thematic learning activities provide students with the opportunity to become more aware of their interests, strengths, and limitations. This increased awareness enables students to make more appropriate decisions regarding: ● senior high occupational course selection ● career plans and goals ● home, school, and community related activities. The thematic learning activities encourage students to think critically and creatively, and some are specifically designed to develop higher levels of innovative and creative behaviour; e.g., - "Operating a Small Business" - "Party Time" - "Design Technology" The Thematic Learning Activity: "Personal Grooming" may be used to instruct students in how to improve their personal appearance as well as how to provide grooming services to others.

GRADE 8	GRADE 9																				
Student Activities: - Use checklists and other self-evaluative instruments to enable students to identify their: ● strengths ● limitations ● career goals ● personal goals ● course goals - Encourage students to elect a lab supervisor democratically on a weekly or monthly rotation. The supervisor's responsibility could be similar to that of a shop foreman, i.e., providing leadership and ensuring that lab rules and procedures are adhered to - Encourage students to evaluate the performance of each supervisor and to provide constructive feedback - Use various strategies for recognizing student performance and behaviours; e.g., – Student of the Week Award – Student of the Month Award – Most Improved Student – Most Well-Groomed Male – Most Well-Groomed Female - Encourage students to design and produce a small card that says: "I appreciate what you did today. You _____" These cards may be given to classmates and others for services and deeds performed. (The teacher may use similar cards to reinforce students' positive behaviours.) - Discuss the appropriate form of grooming, dress, and appearance when in the lab and when involved in community partnership experiences - Discuss: "What does it mean to be well-groomed?"	Student Activities: - Encourage students to maintain a weekly record of school, work or other community activities and evaluate their completion/success rate; e.g.,<table border="1"><thead><tr><th></th><th>Jobs to be Done</th><th>Date to be Completed</th><th>Date Actually Completed</th></tr></thead><tbody><tr><td>Home:</td><td></td><td></td><td></td></tr><tr><td>School</td><td></td><td></td><td></td></tr><tr><td>Work:</td><td></td><td></td><td></td></tr><tr><td>Other:</td><td></td><td></td><td></td></tr></tbody></table> - After completing a project or task, encourage students to evaluate their level of personal satisfaction with their performance and the completed product - Encourage students to suggest ways to improve the lab environment through class discussions, a suggestion box, competition for the best suggestion, decorating personal work areas, etc. - Make a presentation on the topic "I once helped a person to _____ and this is what happened: _____" - Discuss: "The best rewards are those that _____" - Assist students to establish a buddy system within the class to provide peer support		Jobs to be Done	Date to be Completed	Date Actually Completed	Home:				School				Work:				Other:			
	Jobs to be Done	Date to be Completed	Date Actually Completed																		
Home:																					
School																					
Work:																					
Other:																					

GRADE 8	GRADE 9
Community Partnerships (continued): 7. Encourage students to offer their help as volunteers to service and charity organizations. 8. Set up a display of student work in the school, a local shopping centre, a community centre, etc. Have students man the displays and be prepared to answer questions about the work, the course, and the school. (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, pp 51, 53, 55 for additional student activities)	Community Partnerships (continued): 7. Have students initiate contact with guest speakers and introduce the speaker to the class. 8. Visit course related business operations and have students observe and record the behaviour and performance of employees in different businesses. (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, pp 131, 133 for additional student activities)

B. INTERPERSONAL RELATIONSHIPS

The purpose of this human relations concept is to make students more aware of the importance of interpersonal relationships in the home, the school, the workplace, and in the community

Good interpersonal relationships usually result in effective and productive behaviour in all group situations.

GRADE 8	GRADE 9
B 1 Shows respect for others. B 2 Displays courtesy B 3 Describes the respective roles of employers and employees B 4 Explains the concept of "assertive behaviour".	B 1 Relates well to peers and adults. B 2 Recognizes rights of others. B 3 Shows respect for lawful authority. B 4 Displays appropriate assertive behaviour.
Concept, Skill and Attitude Development: Relationships with peers can be fostered by providing, or having students create, a learning environment that is conducive to good interpersonal relationships. (See Suggested Teaching Strategies: "Improving the Instructional Environment".) Relationship building should be started on the first day of each course and involve "ice breaking" and "climate building" activities; e.g., - self-introductions - introductions by other students - role playing in the context of a specific thematic learning activity. The ability to get along with others need not mean that everyone agrees with each other's points of view or behaviours. Rather, good interpersonal relationships are built on mutual respect, trust and caring, and are developed over time. Expressing one's own point of view strongly (i.e., being assertive) is appropriate behaviour if the point of view and the way it is presented does not undermine the rights of others to hold opposing viewpoints.	Concept, Skill and Attitude Development: Research indicates that students' first impressions of the teacher, their peers, and the course content affects their future performance as a class member. Positive impressions can result in positive gains in such areas as: • attendance • achievement • punctuality • perseverance. Good interpersonal relationships cannot be forced or imposed. They usually result from ongoing efforts to build a sense of teamwork and 'esprit de corps' in all course and course related activities. Peer and teacher modelling, peer support groups, and other support networks may be adopted to facilitate the ongoing development of good interpersonal relationships. Situations arise in every home, school, and workplace where there tend to be too many people attempting to be assertive and too few attempting to be conciliatory. If such a situation arises, use the Suggested Teaching Strategies: "SPOT" to resolve the conflict. Resource 1: "An Interpersonal Competencies Rating Chart" may also be used to record students' interpersonal behaviours.

GRADE 8	GRADE 9
Student Activities: 1. Establish rotating teams, discussion, and work groups in the context of the thematic learning activities. 2. Discuss: "What does a leader do?" 3. Encourage students to help others complete a project or perform a task before being asked to do so; e.g., - sweep the floor - replace tools and equipment - perform a customer service 4. Encourage students to make a presentation on the topic: "_____ is my best friend because _____". Community Partnerships 5. Invite the school counsellor and the school secretary to discuss how interpersonal relationships affect their respective jobs 6. Invite one or more community partners to discuss the topic: "Being able to get along with others is important because _____" (Have students use the Suggested Teaching Strategies: "CARING".) (See <i>I.O.P. Practical Arts Program of Studies/ Curriculum Guide</i>, pp. 57, 59 for additional student activities.)	Student Activities: 1. Use Resource 1: "Interpersonal Competencies Rating Chart" on a regular basis to evaluate interpersonal competencies and maintain a chart of students' scores 2. Discuss: "Why are interpersonal relationships important? ● in the home? ● in school? ● in the workplace?" "Which are the first, second, and third most important competencies on the "Interpersonal Competencies Rating Chart"? Why?" 3. Role play course-related scenes that depict assertive, submissive, and conciliatory behaviour. Community Partnerships 4. Encourage students to invite their present part-time employer to tell the class why they were hired and why they have kept their jobs to date 5. Encourage students to engage in volunteer activities such as visiting shut-ins, helping senior citizens, becoming a candy striper, etc. (See <i>I.O.P. Practical Arts Program of Studies/ Curriculum Guide</i>, p. 135 for additional student activities.)

C. COMMUNICATIONS

"Very simply, communication is a message sent and a message received; ideally these two messages would be identical, but seldom are."

(*Communication Tool Kit*, Alberta Agriculture, 1982)

The development of effective and appropriate verbal and non-verbal communication skills is an integral part of each thematic learning activity.

GRADE 8	GRADE 9
C.1 Follows simple instructions. C.2 Demonstrates an understanding of basic occupational terminology. C.3 Uses appropriate conversational skills. C.4 Uses appropriate non-verbal communication skills. C.5 Listens effectively. C.6 Writes legibly.	C.1 Reads simple business correspondence. C.2 Writes simple business correspondence. C.3 Uses basic occupational terms. C.4 Recognizes and follows visual instructions. C.5 Asks questions. C.6 Seeks help when needed. C.7 Develops public communication skills.
Concept, Skill and Attitude Development: Each thematic learning activity involves the student in both verbal and non-verbal communication activities. The concepts, skills and attitudes addressed in Grade 8 are reinforced and expanded on in subsequent grades. Although communication may appear to be simple, it is in fact a complex process which may be represented by the following model: MEANING UNDERSTANDING Effective communication is achieved when the sender's words are understood by the receiver. A message may be sent: • verbally – by word of mouth • non-verbally – in writing – by sign language – through body language – by graphic signs and symbols – by colour codes.	Concept, Skill and Attitude Development: In Grade 9, the concepts, skills and attitudes introduced in the previous grade are applied and reinforced in new thematic learning activities. Students should develop increased awareness of the importance of following both verbal and non-verbal instructions. In addition, they should be encouraged to ask questions and seek help when needed if they do not understand an instruction. Stress the importance of following instructions in the context of home, school, and workplace; e.g., • safety practices • handling tools and equipment • using chemicals • preparing a recipe • following a pattern. Encourage students to make class presentations, to communicate with invited guests, and to interact with community partners when engaged in community partnership activities.

GRADE 8	GRADE 9
Concept, Skill and Attitude Development (continued): Basic technical terminology should be used in the introduction of a concept or skill and students should be expected to use the appropriate term when referring to a process or service. Listening, speaking, reading and writing skills may be further developed by using a variety of the Suggested Teaching Strategies including: ● "AVID" – Speaking ● "CARING" – Listening ● "Descriptive Writing" – Writing ● "LEEP, CHECK" – Listening ● "RAP" – Comprehension ● "Speech Evaluation Guide" ● "WIS" – Reading ● "Writing Directions" – Writing	
Student Activities: 1. Brainstorm and categorize the responses to the question: What are the different ways by which we communicate with others? 2. Design and construct a safety sign that may be used in this course. 3. Role play various scenarios related to each thematic learning activity. 4. Use the school library and class resources to identify the major colours used in colour coding: ● danger areas ● clothing labels ● traffic signs ● hazardous chemicals	Student Activities: 1. Discuss: "What is body language?" "Why is body language important in the home, the school, and in the workplace?" 2. Use charades to demonstrate the use of non-verbal communication techniques 3. Write a project sheet outlining the sequence of tasks that need to be performed to produce a product or provide a service. 4. Simplify the written project sheet by drawing a flow chart to show the processes and procedures. (See Suggested Teaching Strategies: "Flow Charting".)

GRADE 8	GRADE 9
Community Partnerships (continued): 5. Encourage students to offer volunteer services doing reception-type duties in the school or at a local service or charity organization; - e.g., • meeting the public • answering the telephone • taking messages. 6. Invite community partners to conduct mock interview sessions with students 7. Survey two course related business operations, identify the signs and symbols used in the workplace, and compile a table showing each sign and symbol and its meaning (See I.O.P. <i>Practical Arts Program of Studies/ Curriculum Guide</i>, pp 61, 63, 65 for additional student activities)	Community Partnerships (continued): 5. Select a course related business operation and have each student initiate contact with the owner or manager. Students should: • request a job shadowing opportunity • request the owner or manager to evaluate his or her communication skills on the job • write a letter of thanks to the owner or manager. 6. Have students describe how they felt and responded when they went for a interview for a part-time job. (See I.O.P. <i>Practical Arts Program of Studies/ Curriculum Guide</i>, pp 137, 139, 141, 143 for additional student activities)

ORGANIZATION AND PLANNING.

The concepts related to organization and planning include:

- A. Work Habits
- B. Decision Making
- C. Computations
- D. Standards

The organization and planning concepts are applicable to each of the courses that comprise the I.O.P. Practical Arts, Grades 8 and 9 (Business Education, Personal and Public Services, Technical/Occupational). The thematic learning activities in each of these courses provide the vehicle through which these concepts and their related skills and attitudes are learned. Each thematic learning activity is, therefore, designed to help students:

- develop appropriate work habits
- use the problem-solving/decision-making process
- perform basic computations
- perform work and behave to at least minimum accepted standards

Teachers are encouraged to be flexible in their sequencing of the organization and planning concepts. Presenting the concepts as integral components of each thematic learning activity will reinforce the skills and attitudes in a practical manner with which students will be able to identify

RESOURCES

- Alberta Consumer and Corporate Affairs Booklets
- Alberta Labour Code
- Alberta Employment Standards Code
- Workers' Compensation Board "Statement of Rights for Workers and Employers"
- Community Partners

A. WORK HABITS

Work habits are the behaviours that each person brings to each task performed at home, at school, and in the workplace. Work habits and work skills are closely related. Both affect the quality and the quantity of work undertaken and completed.

GRADE 8	GRADE 9
A 1 Identifies the importance of time management. A 2 Identifies the importance of task management. A 3 Attends regularly A 4 Identifies need for organizational skills in the workplace.	A 1 Attends regularly. A 2 Is punctual. A 3 Completes work on time.

GRADE 8	GRADE 9
Concept, Skill and Attitude Development: Work habits reflect the: • knowledge, skills and attitudes that people bring to a task • time and task commitment • respect for self, others, and the task Work habits are: • learned • more important than specific work skills for young job seekers • what employers (part-time/volunteers) look for Work habits should be: • taught and reinforced in each thematic learning activity • used as a major component for evaluation • reinforced through community partnerships	Concept, Skill and Attitude Development: The concepts, skills and attitudes introduced in Grade 8 should be reinforced through their application in the Grade 9 thematic learning activities: • expect students to assume greater individual responsibility for attendance and punctuality • expect work to be completed according to mutually agreed upon standards and within acceptable time lines • reinforce the notion that "good work habits are learned through work experience". Continue to encourage students to use Resource 1: "Interpersonal Competencies Rating Chart" to assess self-improvement.
Student Activities: 1. Identify and record work habits specific to each thematic learning activity. 2. Discuss: "Why are good work habits important?" "Who benefits the most from good work habits?" 3. Encourage students to use Resource 2: "Work Habits Self-Evaluation Chart" to self-monitor their work habits on a regular basis.	Student Activities: 1. a. Brainstorm the benefits of good work habits. b. Categorize and map the benefits into various related groups; e.g., <pre> graph TD A[Benefits in the home] --> B[to self] A --> C[to parents] A --> D[to siblings] E[Benefits in the workplace] --> F[to self] E --> G[to employers] E --> H[to other employees] E --> I[to consumers] </pre> 2. Relate case studies of good and poor work habits, and discuss the effects and the consequences in each case

Community Partnerships

4. Encourage students to:
 - a. compile a work habits checklist
 - b. use the checklist to record observations of good and poor work habits at home, at school, and in the workplace
 - c. share their checklist and observations with classmates.

(See *I.O.P. Practical Arts Program of Studies/ Curriculum Guide*, pp. 69, 71 for additional student activities.)

Community Partnerships

3. Invite community partners (employers/ managers/supervisors/employees) to discuss:
 - a. the importance of good work habits in the workplace
 - b. the consequences of poor work habits to the employee, to the employers, and to others.

(See *I.O.P. Practical Arts Program of Studies/ Curriculum Guide*, p. 147 for additional student activities.)

B. DECISION MAKING

The development of problem-solving and decision-making abilities is an integral component of each of the three practical arts courses (Business Education, Personal and Public Services, Technical/Occupational).

The problem-solving/decision-making model used in each thematic learning activity is based on the model presented in the *Program of Studies/Curriculum Guide*. Teachers are encouraged to modify the model to meet the needs of students and to suit the task and the situation.

GRADE 8	GRADE 9
B.1 Identifies a problem. B.2 Identifies the stages in a simple problem-solving process. B.3 Identifies the components of a task.	B.1 Identifies the problem. B.2 Formulates a plan. B.3 Recognizes alternative courses of actions. B.4 Establishes desirable outcomes. B.5 Identifies criteria for evaluating outcomes. B.6 Portrays the problem-solving/decision-making processes graphically. B.7 Applies a simple problem-solving/decision-making process to a task.
Concept, Skill and Attitude Development: Thinking involves solving problems and/or making decisions. Every problem-solving/decision-making situation can be represented by a simple model; i.e., Input (The problem) → Process (The plan) → Output (What's being done) The use of such a model helps to represent in a simplified manner the various components of a task, situation or problem.	Concept, Skill and Attitude Development: The ability to identify the factors that are involved in a problem-solving/decision-making situation helps those involved to access/estimate/, shape/determine the result. The factors involved in a problem-solving/decision-making situation may include: • Input Factors - background information - present situation - resources available (people, money, time) • Process Factors - alternative ways of solving a problem/making a decision/performing a task or service - selection of "best" alternative - development of plan of action • Output Factors - actions taken - results obtained - evaluation of results

GRADE 8	GRADE 9
Student Activities: Each of the thematic learning activities requires students to think creatively, solve problems and/or make decisions. Some of the activities encourage students to go beyond the basic model outlined; e.g., - "Operating a Small Business" - "Party Time" - "Give it the Gas: Building a Model Dragster". In these and other thematic learning activities, students are provided with opportunities to use the problem-solving/decision-making models provided and/or to develop their own model, to produce a product/perform a service, and to evaluate the finished product or service.	
(See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, pp, 73, 75 for examples of related student activities)	(See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, pp, 149, 151, 153 for examples of related student activities.)

C. COMPUTATIONS

Basic computational procedures are required in each of the three practical arts courses. Ongoing application and reinforcement of these procedures in the thematic learning activities will enable students to transfer the concepts, skills and attitudes acquired in the mathematics courses to a variety of occupational contexts.

GRADE 8	GRADE 9
C.1 Reads numbers up to four digits. C.2 Uses four basic math functions. C.3 Rounds off decimals to two places. C.4 Counts money to \$100.00. C.5 Identifies basic units of measurement. C.6 Identifies measuring tools. C.7 Recognizes uses of charts and graphs.	C.1 Applies basic computations to a task. C.2 Calculates simple percentages. C.3 Makes change for purchases up to \$100.00. C.4 Recognizes the uses of metric and imperial measures. C.5 Draws and interprets a simple table, chart and graph.
Concept, Skill and Attitude Development: Cooperative planning with other subject area teachers, especially teachers of mathematics, will establish ways of coordinating thematic learning activities with topics studied in other subjects. In addition, cooperative planning will enable students to relate and apply the variety of skills being learned to common needs and experiences. Such conferencing will also ensure that instruction in the practical arts courses reinforces and extends, but does not duplicate, learning that this is taking place in other subject areas.	
Student Activities: Student activities designed to develop students ability to meet the objectives outlined in the concept of computations are contained within the thematic learning activities.	

GRADE 8	GRADE 9
Community Partnerships 1. Invite guest speakers from local companies, banks, credit unions, and trust companies to discuss: a. costs of doing business; - e.g., - rent - utilities - taxes - insurance - loan payments - credit card use b. salary ranges, pay methods (piece work, bonuses, commission sales). 2. Encourage students to practise comparative shopping and "best buy" strategies when making or considering a purchase. Have students: a. visit local businesses, obtain product information, and calculate "best buys" (Use Resource 3: "Best Buy Comparative Rating Chart".) b. Use Resource 4: "Comparative Shopping Graph" to draw a graph showing the cost of a product/service available from different businesses; - e.g., - sewing machine - hand tool (hammer, chisel, saw) - Sunday brunch - haircut - portrait photograph. 3. a. Invite guest speakers from related businesses and industries to discuss the use of geometry/measurement/scale drawings in their profession or trade. b. Visit local businesses and industries to identify the types of measuring devices (technologies) used in various occupations; - e.g., - drafts person - photographer/graphic artist - food service worker - hotel/motel desk clerk - tradespersons (carpenters, plumbers, roofers, etc.) (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, pp. 77- 79 for additional student activities.)	Community Partnerships 1. Visit local banks and other financial and business operations. Observe and interview personnel engaged in providing the services offered by these institutions. • What technologies are being used to handle and record sales and service transactions? • What advantages/disadvantages are provided by these technologies to the consumer? the employer? the employees? 2. Visit local businesses and industries and observe and record: • scale drawings/technical drawings/ models in use • the application of measurement procedures • technologies used in measurement 3. Make scale drawings/models of various facilities/items found in the home, the school or community; e.g., • model of a car • scale drawing of a work site • technical drawing of a metal or plastic project. 4. Invite guest speakers from local businesses and industries to discuss the use of metric/ imperial measures in their profession or trade. 5. Arrange community partnership opportunities which allow students to handle money and make change in a supervised setting. (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, pp. 153, 155, 157, 159 for additional student activities.)

D. STANDARDS

A standard is a model against which similar things are compared. The standards addressed in the practical arts are similar to those commonly used in the home and the workplace.

Standards are used to protect people from injury and to ensure the efficient use of resources (e.g., people, tools, equipment, supplies).

GRADE 8	GRADE 9
D.1 Identifies types and uses of standards in the workplace. D.2 Identifies general safety standards. D.3 Identifies the importance of personal and public hygiene practices. D.4 Identifies task related standards.	D.1 Identifies occupational related standards. D.2 Describes related occupational safety standards. D.3 Describes personal and public hygiene practices. D.4 Completes projects and/or provides services to acceptable standards.
Concept, Skill and Attitude Development: Standards are often expressed in the form of rules and/or regulations. Standards are used in the home, the school, and in the workplace and are generally concerned with: ● health and safety – personal and public hygiene practices ● performance – how things are produced or service is provided ● rights and responsibilities – how employers treat employees and how employees perform their roles The standards that relate to workers' health and safety and their rights and responsibilities may be in the form of Acts legislated by government departments; e.g., ● Alberta Labour Relations Code ● Alberta Employment Standards Code Other standards are provided by agencies such as: ● Canada Safety Council ● Alberta Safety Council (See the Thematic Learning Activities: "Safety and First Aid" and "Safety: The Tools of the Trade".)	Concept, Skill and Attitude Development: Standards are often used to check quality in the workplace. Quality checks in various occupations may include: ● product quality ● service quality ● time management ● supply management. Quality checks ensure that consumers receive a consistent product or service. Standards are also used in the workplace to ensure that the health of employees and others is protected. These occupational health and safety standards relate to: ● personal health and fitness ● work area cleanliness ● equipment, tools and materials handling practices. For example, strict regulations govern the way in which people in the food industry handle the preparation and service of food.

GRADE 8	GRADE 9
Student Activities: 1. Discuss: "What are standards?" "Why are standards important?" 2. a. Brainstorm to identify standards that apply in the school and in particular areas of the school: ● gymnasium ● personal and public services lab ● keyboarding lab ● technical/occupational lab b. Categorize the standards identified for each area into clusters: ● health related (personal and public hygiene) ● performance related (product/service quality) ● safety related (tools, equipment, supply use) ● work habits (attendance, performance, work area management) 3. Encourage students to identify their own standards in the context of their home, their school, and community activities. Have them share their standards with the class. Community Partnerships 4. Invite a supervisor, manager or owner of a local business to discuss: ● the importance of standards in business ● the type of standards that apply in different businesses ● the consequences of not operating according to standards 5. Encourage individual students to obtain a mentor to guide the development of their personal, process, and product standards and thus gain an increased appreciation for the importance of standards in the workplace (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, pp. 81, 83 for additional student activities.)	Student Activities: 1. Encourage students to: a. formulate individual, group, and class standards of: - production - performance - safety - work habits b. develop checklists or other instruments that can be used to evaluate how well standards have been met. (Examples are provided in some Thematic Learning Activities; e.g., "Keyboarding: Building Skills".) 2. Discuss: "What are the differences between personal, process, and product standards?" "What is the relationship between personal, process, and product standards?" (Use Resource 5: "Input, Process, Output Standards Model".) 3. Visit course related workplaces and have students identify the standards observed. (Use Resource 6: "Standards Observation Chart" to record the standards observed.) Community Partnerships 4. Encourage community partners to provide students with feedback about personal, process, and product standards after observing them in school or in the workplace. 5. Individually or in small groups, have students select an occupation of interest and, using community partners and other resources, identify and describe the standards commonly used in the occupation (Use Resource 7: "Occupational Standards Research"). (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, pp. 159, 161 for additional student activities.)

ENTREPRENEURSHIP

The concepts related to entrepreneurship include:

- A. Entrepreneurial Awareness
- B. Small Business Operations
- C. Field Experiences.

Entrepreneurship is a career option for I.O.P. students. For this reason, the thematic learning activities provide opportunities for students to gain awareness of their potential to become entrepreneurs by being involved in field experiences and other community partnership activities.

RESOURCES

- Alberta Consumer and Corporate Affairs Booklets
- Alberta Manpower, Career Information Services
- Entrepreneurship: *A Primer for Canadians*, Canadian Foundation for Economic Education, 1985
- Community Partners

A. ENTREPRENEURIAL AWARENESS

Entrepreneurship is concerned with the qualities of small business operations and the social and economic functions performed by small businesses in a community.

Entrepreneurs are creators of business enterprises. I.O.P. students have the potential to become entrepreneurs.

GRADE 8	GRADE 9
A.1 Explores self-directed activities at home, in the school, and in the community.	A.1 Identifies potential entrepreneurial opportunities in occupational clusters.
Concept, Skill and Attitude Development: People who enjoy taking risks, being creative, and setting the limits for their own activities may have the potential to become entrepreneurs. Potential entrepreneurial awareness can be demonstrated early in life as children are observed taking risks and being creative. If regularly reinforced, this type of individual and creative behaviour is encouraged.	Concept, Skill and Attitude Development: Entrepreneurship begins by recognizing a potential business opportunity (a consumer need) that can be satisfied with a new or improved product or service. Entrepreneurs may be craftspersons, designers, inventors, artists, tradespersons, or helpers. Above all else, they must have a "head for business"; that is, they must be able to recognize a business opportunity and make the effort to turn the opportunity into a successful enterprise.

GRADE 8	GRADE 9
Concept, Skill and Attitude Development (continued): Almost any skill, hobby, interest has the potential to become an entrepreneurial enterprise. Successful entrepreneurs are those who have taken initiative, time, and risk to develop an idea they believe in. Entrepreneurs are "the mothers/fathers of production" Their business activities may include: ● lawn and garden maintenance ● ice cream sales ● baby-sitting/child care ● paper/flyer routes ● bicycle maintenance ● flea markets ● garage sales ● model building	Concept, Skill and Attitude Development (continued): Each of the eight occupational clusters that comprise the I.O.P. course content at the senior high level provides opportunities for entrepreneurial activity. At the Grade 9 level, students may explore their potential for operating a small business through the Thematic Learning Activities: ● "Operating a Small Business" ● "Baby-sitting: A Certificate Course" ● "Party Time" ● "Getting Into the Picture" ● "Heavy Metal" ● "Wheeling Into the Bigger Picture" ● "Give it the Gas: Building a Model Dragster" ● "Joining Forces: Constructing an Extension Cord" ● "Small Engine Maintenance"
Student Activities: 1. a. Encourage students to analyze their own activities and interests and identify one area that might be turned into an entrepreneurial activity b. Discuss: - the reasons for their selection - how the selection might be turned into a small business operation c. Encourage students to participate in "show and tell" activities about their hobbies and interests 2. Discuss: "What does it mean to be a mother/father of production?" "What entrepreneurial opportunities are related to courses in: ● Business Education? ● Personal and Public Services? ● Technical/Occupational?"	Student Activities: 1. a. Read Resource 8: "The Case of Trivial Pursuit" and discuss the following questions: ● What is Trivial Pursuit? ● Who created the game? ● What encouraged the creators to develop the game? ● What was the major force that drove them to develop the game? ● How did they finance the game's development? b. Using the problem-solving/decision-making model as a guide, outline the procedures followed by the game's creators. c. Draw a flowchart to show the stages in the development of the game d. Discuss: "What was the most important stage in the development process? Why?"

GRADE 8	GRADE 9
Community Partnerships (continued): 3. a. Invite owners/operators of local small business to describe how they got started in business. b. Encourage students to discuss their hobbies and interests with guest speakers and solicit ideas about potential entrepreneurial opportunities. 4. Encourage students to relate case studies of how family members, relatives or friends started a small business. (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, p. 87 for additional student activities.)	Community Partnerships (continued): 2. a. Interview owners/operators of small businesses. Enquire about how the business was started and the advantages and disadvantages of owning/operating a small business. b. Have students analyze the data using Suggested Teaching Strategies: "PMI". 3. Invite a representative from Junior Achievement to discuss the organization's purpose and how it operates. (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, p. 165 for additional student activities.)

B. SMALL BUSINESS OPERATIONS

Small businesses are those that employ from one to twenty people and are frequently owner or family operated.

Small business operations may be found in all communities. Many are started by entrepreneurs who invented a new or improved product or service which they then proceeded to sell. The idea of starting a small business is usually sparked by the recognition that an opportunity exists to satisfy a public need or want in a better way using existing or new technology.

GRADE 8	GRADE 9
B.1 Identifies basic small business operating procedures.	B.1 Participates in the operation of a business venture in the school.
Concept, Skill and Attitude Development: Operators of small businesses frequently need to use problem-solving/decision-making abilities. One guide to decision making is shown in Resource 9: "Entrepreneurs' Decision-Making Model". Operating a business involves an ongoing process of problem solving/decision making. At Step 4, the entrepreneur puts theory into practice by raising time, money, and other resources in the belief that the business will succeed.	Concept, Skill and Attitude Development: Successful entrepreneurs tend to demonstrate similar traits: ● perseverance ● initiative ● competitiveness ● self-confidence ● hard work.

GRADE 8	GRADE 9
Concept, Skill and Attitude Development (continued): The basic procedures of operating a business (Step 4) are identified in Resource 10: "Basic Business Operating Procedures" and are expanded upon in the Thematic Learning Activity: "Operating a Small Business".	Concept, Skill and Attitude Development (continued): Small businesses may be oriented to production, repair and maintenance, sales service, etc. Their purpose, however, is usually similar; that is, to make a profit for their owners. For an expanded perspective on procedures for operating a small business, see the Thematic Learning Activity: "Operating a Small Business".
Student Activities: 1. a. Brainstorm to identify local entrepreneurial businesses. b. Categorize the businesses identified according to: • agricultural • construction • production • sales • service. 2. a. Encourage students to use the library, newspapers, and other resources to identify recent entrepreneurial success stories. b. Have students present the cases they uncover to the class. Community Partnerships 3. Invite owners/operators of small businesses to discuss how a small business is operated. 4. Encourage students to identify potential mentors in the community (i.e., people who will guide them in planning and operating a small business). (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, p. 87 for additional student activities.)	Student Activities: 1. Use the Thematic Learning Activity: "Operating a Small Business". (This activity may be used in either/both Grade 8 and Grade 9, and in each or any of the three practical arts courses. The focus on different types of small businesses will enable students to develop a broad perspective of small business opportunities, and reinforce basic small business operating procedures.) 2. Interview owners/managers of small businesses and enquire about how the business was started and the advantages and disadvantages of owning and/or operating a small business. 3. a. Conduct a survey of small businesses in the community. Use field observations and telephone directories to assist in identifying entrepreneurial operations. b. Categorize the businesses into one or more of the eight occupational clusters. 4. Encourage entrepreneurs in the community to become mentors to the students and to their ventures. (See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, pp. 165, 167 for additional student activities.)

C. FIELD EXPERIENCES

The field experience component of community partnerships is an integral part of each practical arts course and each thematic learning activity. Community partnerships enable students to develop concepts, skills and attitudes in a workplace environment. By being exposed to the "real world" of work, students become more aware of how their present strengths and interests can be related to the eight occupational clusters, and how their present limitations may be overcome with further education and training.

GRADE 8	GRADE 9
C.1 Participates in various field experiences.	C.1 Initiates a community partnership activity.
Student Activities: Suggested community partnership activities are contained as part of each thematic learning activity. Community partnership activities include: • Mentorship -- A student is paired with an employee of a local company who volunteers to spend a few hours a month to be a "friend in industry" to the student. Mentors typically invite students to their workplace to tour the company facilities and may include them in trade and technical fairs. • Job Shadowing -- After selecting a job area of interest, the student spends time with an employee working in that area, thus gaining exposure to the realities of the job and providing the student with realistic expectations to enable appropriate educational planning. In recent years, job shadowing has become a particularly popular method of informing students about potential careers in non-traditional fields. • Group Community Partnership Projects -- One effective way of introducing students to individual community placements is first to involve them in a group community partnership project. Such projects are a versatile approach to experiential, community-based learning that can be designed around nearly any length of time, to fit almost any situation and involve any number of students. Projects can incorporate academic, socio-personal and occupational objectives and may be set up as homeroom projects, school projects, or even as entrepreneurial endeavours. Many classes may become involved in such projects as: - school yard beautification (the science class may determine the most appropriate fertilizer, grass, and paint to use; the mathematics class may undertake a cost comparison of various supplies; and each occupational class may assume an appropriate activity - planting, painting, etc.). - school store (occupational classes may supply the school store with products to merchandise such as woodworking or sewing and craft projects, business classes may handle the bookkeeping and retailing, and the English class may promote and advertise the store)	
(See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, p. 87 for additional student activities.)	(See I.O.P. Practical Arts Program of Studies/ Curriculum Guide, p. 167 for additional student activities.)

WORK SKILLS

The concepts related to work skills include:

- A. Employability
- B. Safety
- C. Sanitation
- D. Tools, Equipment and Supplies
- E. Projects

Students' knowledge, skills and attitudes related to each of these concepts is developed through learning activities contained within the following themes:

- All About Business
- Service with a Smile
- Techniques with Technology

The suggested grade level of each thematic learning activity and each activity's relationship to concepts 1-4 (Career Awareness, Human Relations, Organization and Planning, Entrepreneurship) are depicted in the "Planning Matrix" presented earlier in this document.

Resource 1

PERIOD COVERED: _____

* RATING SCALE: 5 Excellent
4 Very Good
3 Good
2 Fair
1 Poor

[illegible]

- | | |
|----------------------|--|
| CONFIDENCE | - Believes in self and others |
| PERSEVERANCE | - Continues to work on difficult tasks until completed |
| COMPREHENSION | - Pays attention and "catches on" to ideas/situations |
| INITIATIVE | - Finds work to do without being told; is self-motivated; is the first one to begin work |
| RELIABILITY | - Does tasks as assigned without constant supervision |
| TACT | - Is careful not to hurt others' feelings or cause anger |
| LOYALTY | - Stands up for personal values and fully supports supervisors |
| ENTHUSIASM | - Demonstrates desire to learn and please; eager, earnest, zealous worker |
| COOPERATION | - Demonstrates willingness to work as a team member and assist others |
| ADAPTABILITY | - Adjusts to changes in schedules, job assignments, supervisors |
| SAFETY CONSCIOUSNESS | - Observes safety rules and regulations |
| HOUSEKEEPING | - Maintains tools, equipment and work stations |
| ORAL EXPRESSION | - States information in a clear, logical order |
| SOCIABILITY | - Makes friends easily and is open-minded |
| GROOMING | - Dresses appropriately for variety of occasions |
| LEADERSHIP | - Gets others to cooperate and channel their efforts toward a common goal |
| POISE | - Maintains self-control |

SIGNATURE: _____ DATE: _____

WORK HABITS SELF-EVALUATION CHART

Resource 2

Name _____ Date: _____ Course: _____			
	EVALUATION Excellent $\longrightarrow$ Poor		
Time Management:	3	2	1
Arrives on time			
Brings all necessary equipment to class			
Prepares for work immediately			
Performs duties without being asked			
Uses extra time wisely			
Considers solutions to problems before asking for assistance			
Completes work on time			
Task Management:			
Uses equipment and implements as instructed			
Cleans work area after use			
Follows lab/class rules and regulations			
Personal Management:			
Is well-groomed			
Wears clothing appropriate to the task			
Maintains accepted standards of personal and public hygiene			
Safety:			
Takes all other necessary safety precautions			
Uses appropriate safety devices (clothing, shields, guards, etc.)			
Best Score: 45		Score Attained:	
Student's Signature:		Teacher's Signature:	

"BEST BUY" COMPARATIVE SHOPPING CHART

Resource 3

The "best buy" may not always be the best in terms of obtaining value for money. To ensure a "best buy", the consumer should identify at least three local businesses that provide similar products/services and compare what each business has to offer in terms of:

- cost
- quality
- service
- after sales service
- warranty/guarantee.

Select a product/service and make a comparative shopping chart by visiting three or more businesses selling the product/service and obtaining information and completing the chart below.

PRODUCT/SERVICE:			DATE:		
BUSINESS	COST	QUALITY (EXC., GOOD, POOR)	SERVICE	GUARANTEE/ WARRANTY	AFTER SALE SERVICE
Store 1 _____					
Store 2 _____					
Store 3 _____					
Store 4 _____					
Store 5 _____					

1. Which is the "best buy"? Why?
2. Which is the "worst buy"? Why?
3. Which of the following would you choose? Why?
 - a. A product/service that is less expensive but of inferior quality.
 - b. A product/service that is more expensive but of the highest quality.
 - c. A product/service of average cost and average quality.

COMPARATIVE SHOPPING GRAPH

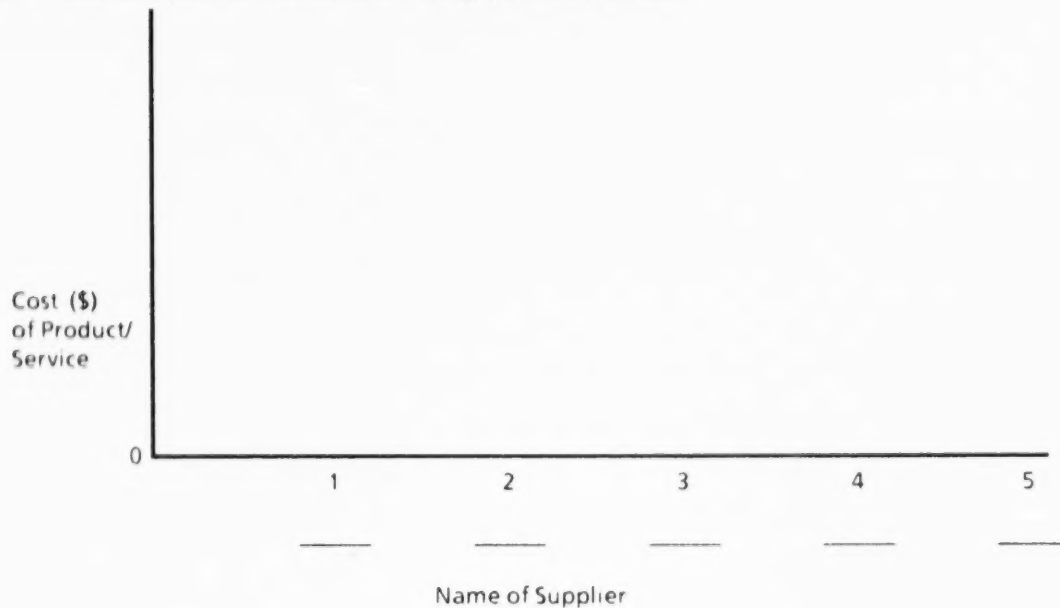
Resource 4

Product/Service: _____

Date of Pricings: _____

Instructions:

- (a) Fill in the names of five suppliers selling the same or similar product or service and the product cost from each supplier.
- (b) Answer the questions below when the graph is completed.



1. Which supplier is charging the most for the product/service?
2. Which supplier is charging the least for the product/service?
3. How much difference is there between the highest cost and the lowest cost of the product?
4. If you purchased the product at the lowest available price, what percentage would you save as compared to the highest priced product?
5. What is the average price of the product?
6. Suggest reasons for the differences in prices.

INPUT, PROCESS, OUTPUT STANDARDS MODEL

Resource 5

Below each of the following headings, list the standards that should be observed:

INPUT

Personal Health
•
•
•
•
•

PROCESS

Safe Use of Tools
•
•
•
•
•

OUTCOME

Customer Satisfaction
•
•
•
•
•

STANDARDS OBSERVATION CHART

Resource 6

Student: _____ Date: _____ Workplace: _____	
Type of Standard	Description of Worker's Behaviour
Personal Standards • • • • • • •	
Process Standards • • • • • • •	
Product Standards • • • • • • •	
Based on your observations, complete the following sentence: "I think that the standards in this workplace are high/low because _____ _____ _____ _____ _____	

OCCUPATIONAL STANDARDS RESEARCH

Resource 7

Name: _____

Occupation Investigated: _____

Standard	Description of Standard (What a worker has to do to meet the standard)

THE CASE OF TRIVIAL PURSUIT

Entrepreneurs take risks -- sometimes they are successful and sometimes they fail, but when entrepreneurs start out, they probably have tucked away in the back of their minds the hope that their businesses may really "take off". The dream of entrepreneurs probably has a new standard these days. Rather than simply hoping the business is a major success, they probably think "If only this could turn into a success like Trivial Pursuit".

If you haven't heard of Trivial Pursuit, you are probably not a game player. Trivial Pursuit is an entrepreneur's dream come true. Let all of us dream for a moment and take a look at the exceptional success of Trivial Pursuit -- being aware that this is an exception.

Trivial Pursuit, the Game People Play

Tracking down the trivial has become one of the great pastimes -- and has made two young Canadians millionaires

BY DEBORAH COWLEY

Remember who lived at 221B Baker Street? (Answer: Sherlock Holmes.) Or whose record did Babe Ruth break when he hit 60 home runs in 1927? (Answer: His own.) Or do you recall how James Bond likes his martinis? (Answer: Shaken, not stirred.) Or who was Howdy Doody's sister? (Answer: Heidi Doody, of course.)

These questions -- plus 5996 other snippets of trivia -- form the basis of a new game that has captivated more people and triggered more nostalgia than any other game in Canada's history. Since the first boxes crept onto store shelves in November 1981, Trivial Pursuit -- the "party-in-a-box" -- has snapped up 35 percent of the national game market, and more than two million have been sold. It has created a nationwide trivia craze and turned its Canadian inventors, Chris Haney, 33, and Scott Abbott, 34, into millionaires. Sales in 1983 have outstripped the traditional greats such as Monopoly and Scrabble.

In the United States, too, where the game was officially launched in April 1983, Trivial Pursuit is beginning to take off with sales of \$50 million expected over the next

two years. "It has quite literally turned the game industry topsy-turvy," says Stew Robertson, vice president of Chieftain Products Inc., which distributes the game in Canada. "In 30 years of business, I've never seen a phenomenon like this."

Argument Began It. The game's rules are simple: A roll of the die determines which of the six categories of 6000 trivia questions you tackle: geography, entertainment, history, art and literature, science and nature, sports and leisure. Players move their tokens around a color-coded wheel on a board, answering questions in the various categories. A correct answer at one of the category "headquarters" produces a colored wedge. The first player to collect all six wedges, return to the center and answer a question from a category picked by his opponent wins the game -- and the distinction of being called a "six-wedger."

Whether it is played by 2 people or teams of up to 24, Canadians of every generation and educational level have caught Trivial Pursuit fever. They play it anytime -- games have been known to span weekends -- and any place. It has taken over lunchrooms,

college dorms, cottages and retirement homes. Trivial Pursuit is played on the highway between trucks linked by CB radio; one group of Torontonians played it while waiting to do jury duty.

It is also becoming a popular bar game. Several Ontario bars have set up tables with boards at the ready. The Wheat Sheaf Tavern in downtown Toronto has designated Friday night as "Trivial Pursuit Night." Over 100 clients pack the house to answer questions drawn from a box. Says manager Donnie Felora: "They have a whale of a time!"

Big business, too, is jumping on the bandwagon. Last March, *The Toronto Sun* ran "The Trivial Pursuit Corporate Challenge," raising \$23,000 for The Easter Seal Society of Ontario. And in a pioneering venture that is spreading across the country, Toronto's CFTR launched its own daily radio version of the game - "Trivial Pursuit, the Radio Game" - last February. Says the program's originator, John Landecker: "The response has been extraordinary. People are so keen to call in they phone at 6 a.m. and ask to be put on hold until we open the lines at 7:45!"

Landecker believes the game's appeal lies in the choice of questions and the crafty way they are worded. "They invite discussion and involvement, and that's what people enjoy," he says. In the spring, he drew the question "What's the most intelligent creature on Earth after man?" The answer was, "The dolphin." Many listeners phoned in to say they thought a porpoise was more intelligent, so Landecker recruited a whale expert from Marineland in Niagara Falls, Ont., to appear on air to settle the arguments. The expert said "dolphin" was right.

But co-creator Chris Haney claims it's the "thigh-slapping" questions that people like best. For example, "Who played for the New York Rangers, Brooklyn Dodgers and New York Knicks in a single season?" (Answer: Organist Gladys Gooding.) Says Chris: "As soon as you hear the answer

you say 'My God, why didn't I think of that?'"

While success has been remarkable for the creators of Trivial Pursuit, the road to the top was anything but smooth. The game was conceived on December 15, 1979 - over a game of Scrabble in the Montreal kitchen of Chris and Sarah Haney. Chris, nicknamed "Horn," is an amiable high-school dropout originally from Welland, Ont., who worked as a photo editor for the *Montreal Gazette*. His Scrabble opponent was Scott Abbot, a bespectacled psychology graduate turned sportswriter with *The Canadian Press*. The two were talking about games and arguing who was the better Scrabble player. Chris went out to buy a game, and realized it was the sixth game of Scrabble he'd bought in his life. They decided then and there to invent a board game. "It took us 45 minutes to design the game," says Scott, "and three months to figure out the scoring."

They had a "mania belief" in the game right from the start. But they knew nothing about marketing. So in January 1980, armed with an expired press pass and a camera without any film, they visited the Canadian Toy and Decoration Fair in Montreal posing as reporter and photographer. There, they pumped toy manufacturers about the strategies of marketing a game and, according to Scott, "collected about \$10,000 worth of information in one afternoon."

Question of Money. They decided to set up their own company and produce the game themselves. They recruited Chris' older brother John, a one-time actor and former pro hockey player, and St. Catharines lawyer Ed Werner. Chris quit his job in May 1980 and began contacting companies who could manufacture different parts of the game.

The all-important questions had yet to be written. So in October 1980, Chris packed a pile of almanacs, encyclopedias, guides and record books, and left by boat for Spain with Sarah and their two-year-old

son. His brother John joined them later and for the next five months they worked 16-hour days amassing mountains of trivia. In Montreal Scott remained at his full-time job and spent his free hours working on the questions.

"Surprisingly many questions are right in front of your nose," Chris points out as he dips into his pocket, flips out his wallet and asks, "How many Eskimos are there on the back of a two-dollar bill? (Answer: Six).

With Chris back in Canada by late March, he and Scott set up their own company, Horn Abbot Limited. During the summer they worked on getting the game ready for a test run. The final editing of the questions, which took six weeks, was done in the Werners' dining room; artist Michael Wurstin was hired to design the board and logo (he was paid with shares in the company); they all pored over color combinations and package designs.

"They were meticulous in their attention to detail," says Joe Simpson, a manufacturing consultant who later printed the boxes and cards. "They knew exactly what they wanted and were going to get it, no matter how unorthodox."

They rejected the usual game format, opting instead for a chunky, square box. Then they spent weeks finding someone who would make a board to fit into the box. And for the cover they chose to show the words "Trivial Pursuit" etched in an elegant script. "We wanted it to look good on coffee tables, not just in toy cupboards," says Chris.

But to produce the first 1200 copies for a test run, they needed money. They badgered 32 friends, relatives and former colleagues into buying shares in the venture and raised about \$60,000.

They moved to an office that summer in downtown St. Catharines. The game components arrived in late October 1981, and they all worked around the clock putting the boxes together. By November they were ready to test their product.

Scott says, "We figured, if the game goes, fine. If it doesn't, we'll have Christmas presents for the rest of our lives." They shipped the first 1100 boxes to stores in the St. Catharines-Toronto area and a few to Vancouver. To their delight, all the games sold. They took samples to the Canadian Toy and Decoration Fair but sold only 200. Undaunted, they went on to the prestigious American International Toy Fair in New York, but got orders for only 144.

Snowball Effect. But word of this homegrown game was spreading, and orders from retailers were coming in. However, they had no more games in stock and had used up all their money. The Haneys were now living from one baby-bonus check to the next, and Sarah, though six months pregnant, took a part-time nursing job to help pay the bills.

They went to the banks for credit, but were turned down. "We'd really hit the bottom," recalls Chris. For several months they eked out a living on dwindling savings.

Finally, in March 1982, they found a bank in St. Catharines willing to give them a line of credit after Abbot's father gave them a loan; this allowed them to produce another 20,000 games.

They turned an old boat-works in Niagara-on-the-Lake into their assembly plant. Scott now left his job to become the company accountant, "although I didn't even know what an invoice was." Though they had little money, they bought a computer to store the questions. Soon, orders began to pour into the small boat-works. The four-man team could barely keep up with the demand, so in October they handed over the distribution to Chieftain Products, which immediately ordered 80,000 games. Says Chieftain's Stew Robertson: "The snowball effect was incredible. The more we shipped, the greater the demand."

As Christmas approached, line-ups of people waiting to buy the game stretched around two sides of Mr. Gameways' Ark on Toronto's Yonge Street. To handle the non-stop phone calls, Gameways was forced to set up a Trivial Pursuit hot line.

As popularity of the game spread across Canada, Americans sought to cash in on the boom as well. In November the creators signed a contract with Selchow & Righter, the distributors of Scrabble, to manufacture and distribute the game in the United States.

The beneficiaries are numerous. Chris and Scott should have no financial worries for the rest of their lives. The 32 private shareholders' investment has increased about 25 times. And from that original assembly line of four, there are today some 1000 Canadians involved in manufacturing and getting the game to the marketplace, 70 at the Trivial Pursuit plant in Mississauga, Ont.

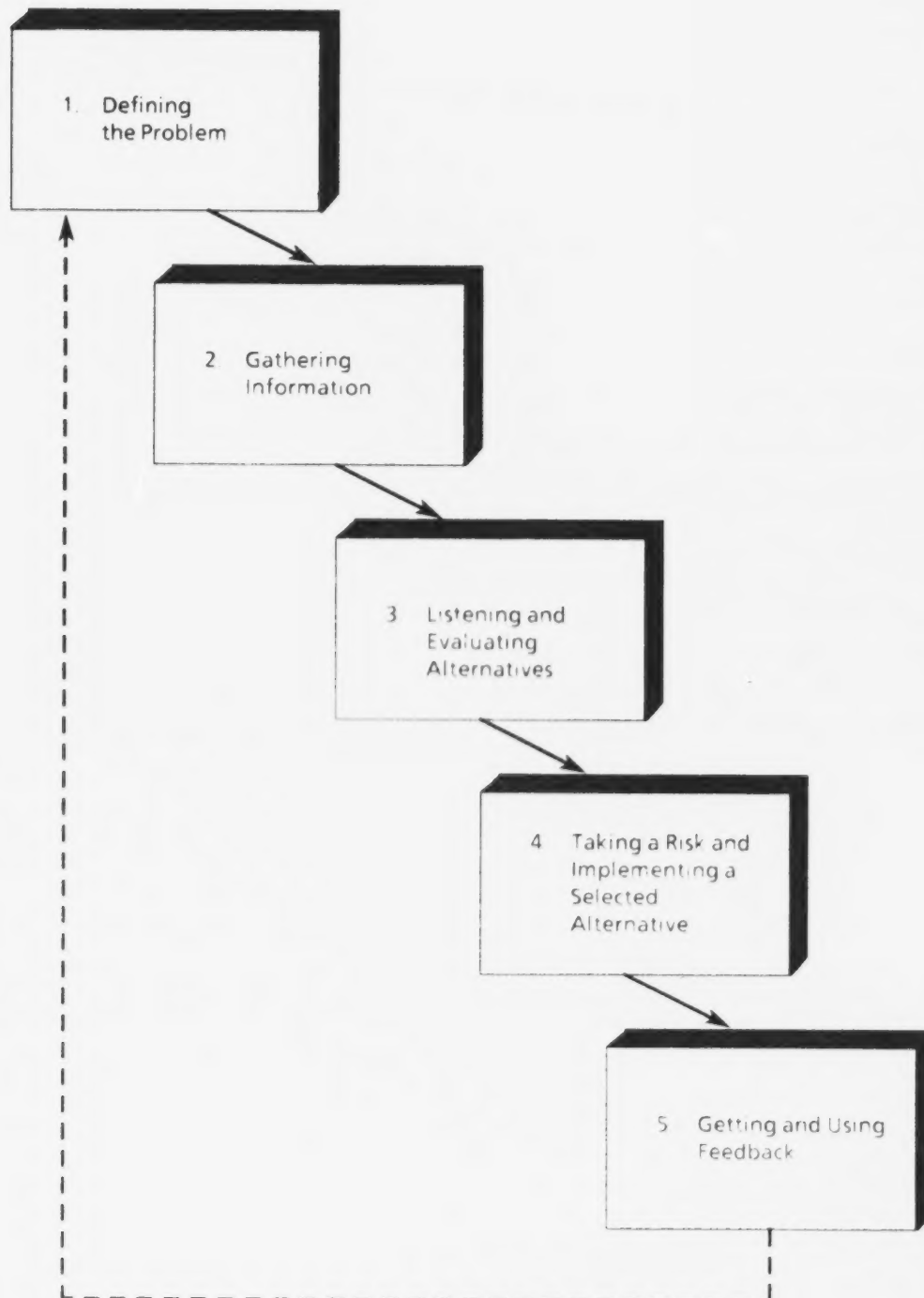
There are four versions of the game currently available: the original master "Genius" edition, a "Silver Screen" edition with 6000 movie questions, the "All-Star Sports" edition for sports buffs, and a "Baby Boomer" edition for those who grew up in the '50's and '60's ("from atomic power to flower power"). "Genus II", in separate Canadian and American versions, and a children's edition will follow. A Quebec adaptation is already on the market. Says Chris: "Our plan is to work toward a whole library of trivia. We envisage over 30,000 questions all packed into neat little boxes."

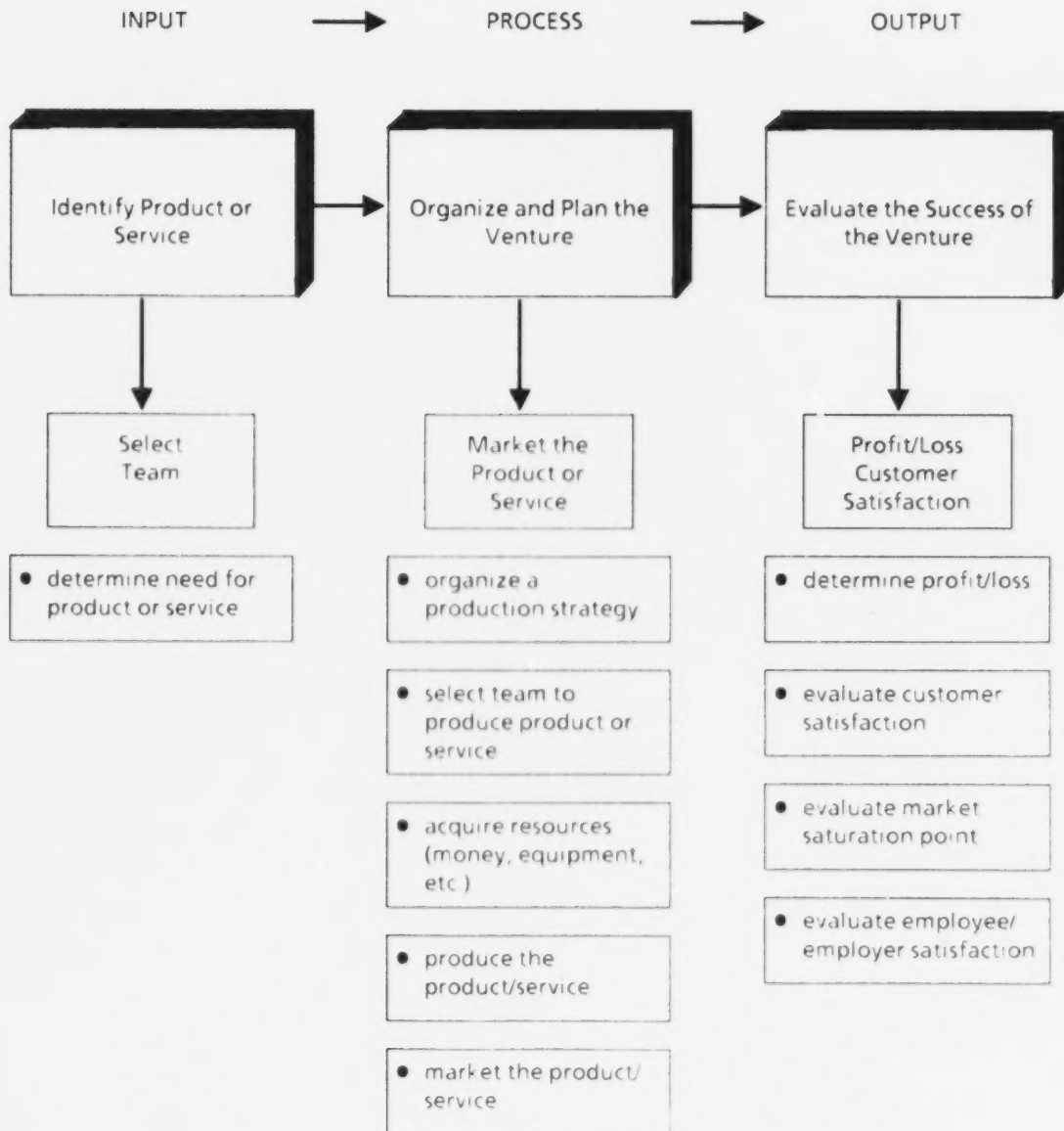
Meanwhile, editions patterned after the original game are being adapted for Barbados. The game is available in Britain and Australia; it will be available soon in France, Germany, Holland and Brazil. Negotiations are going ahead in Japan and Venezuela. Beams Chris: "Trivial Pursuit is taking over the world."

A few months ago, Chris was walking down the street when a hefty man stopped to ask him if he was the creator of Trivial Pursuit. Then he gave Chris a big hug, and said, "Thanks so much for inventing the game, I've never had so much fun in my life." Haney, the high-school dropout, paused and then responded with a grin, "Well, I guess the same goes for me too!"

ENTREPRENEURS' DECISION-MAKING MODEL

Resource 9





SUGGESTED TEACHING STRATEGIES

A variety of strategies and sample activities useful in gathering, interpreting, recording, evaluating and communicating ideas in the practical arts are provided with the suggested activities and student resources included in this manual and in the *Program of Studies/Curriculum Guide*. In addition the strategies may be effectively used to support students in their use of language and thought processes in many areas of each of the practical arts courses

- AVID: A Strategy for Transfer
- Brainstorming
- CARE: A Safety Strategy
- CARING: A Listening Strategy
- Clue Words
- Crossword Puzzle: A Comprehension Strategy
- Descriptive Writing: An Evaluation Guide
- First Letter Mnemonic: A Remembering Strategy
- Flow Charting: A Process Analysis Strategy
- Improving the Instructional Environment
- LEEP, CHECK: Presentation Strategies
- Listening Guide
- PMI: An Exploration Strategy
- Positive Self-Talk: A Self-Concept Building Strategy
- RAP: A Comprehension Strategy
- Reinforcing the Positive
- SCAMPER: An Idea Generating Strategy
- SCORER: A Test-Taking Strategy
- Speech Evaluation Guide
- SPOT: A Social Problem-Solving Strategy
- SQ3R: A Chapter Attack Strategy
- Writing Directions: An Evaluation Guide

A more detailed outline of each of the above strategies follows

AVID: A Strategy for Transfer

Purpose

- to enable students to transfer concepts, skills and attitudes learned in one course to another course.

Description of Strategy

A: Academics
V: Vocational
I: Interpersonal
D: Daily living

Procedure

After a strategy has been directly taught, students can be shown how to use the 'AVID' mnemonic as an aid for discussing and formulating academic, vocational, interpersonal and daily living applications of the strategy, or the principles derived from the strategy.

For example, organizational strategies initially taught in the academic courses may be discussed and applied to the vocational (dress, materials for the job), interpersonal (coming to appointments on time) and daily living (organized room) areas.

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Brainstorming

Purpose

- to generate a large number of ideas that will lead to more creative problem solving
- to open students up to sharing ideas without fear of criticism
- to enable students to build on each other's ideas

Procedure

1. Teacher states a specific problem or asks an open-ended question such as:
 - What other uses could you find for a _____?
 - In what other ways could you improve a _____?
 - List all the things that are soft and white _____
2. Give the rules for 'brainstorming':
 - Don't judge ideas during the brainstorming stage
 - Provide a safe environment; accept everything. (Evaluation should be done later as a separate follow-up activity)
 - Encourage "far out" ideas
 - Build (piggyback) on other ideas
 - Don't stop too soon. Initial responses are often easily recalled from memory and are usually followed by a pause or a slowing down of ideas. Beyond this point, students are beginning to think more deeply. Many ideas are needed before really original thinking takes place. Remember, "quantity comes before quality."
 - Everyone, including the teacher, should contribute to demonstrate divergent thinking and to add encouragement.
3. Restate the problem or question and, as students give their responses, record the ideas, without comment.
4. When sufficient ideas have been recorded, comment on the number and variety of responses

CARE: A Safety Strategy

Purpose

- to stimulate students' awareness of the need to follow directions and safe operating instructions for each, in the home, in school, and in the workplace.

Description of Strategy

C – Caution
A – Alertness
R – Responsibility
E – Every day

Procedure

Students may be asked to:

- brainstorm examples for each letter of the mnemonic to increase the scope of their awareness
- design and produce a poster to display in context the application of the principles of CARE; for example, a student in a business education course may design a safety graphic and the graphic may be produced by students in a technical/occupational course.

CARING: A Listening Strategy

Purpose

- to improve students' ability to listen effectively.

Description of Strategy

C – Cares about the message

A – Always looks at the speaker

R – Remains comfortably stationed (not fidgeting or moving around)

I – Is quiet (when being spoken to)

N – Notices details (so questions or replies can be formulated)

G – Greets speaker with a clear mind (tries to think only about what's being said.)

Procedure

- (a) During an oral presentation, note situations where some students are not attending. (i.e., not caring about the presentation – moving about, chattering to each other, working on an assignment, etc.). Lead a discussion around what it feels like to talk before a group of people who appear uninterested and the consequences to both speaker and listener. Then present the 'CARING' Strategy.
- (b) Teach the 'CARING' strategy as a preparation of an oral presentation unit.

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Clue Words

Purpose

- to enable students to identify and interpret key action words used in tests.

Procedure

The following terms are frequently used on tests and should be reviewed to ensure that all students know their meaning

- Compare** – Look at two or more things and find how they are alike.
- Contrast** – The opposite of compare. Look at two things, as a minimum, and see how they are different.
- Criticize** – You should take a look at something and talk about its worth. What might be wrong with it?
- Define** – Give a clear meaning.
- Diagram** – Make a drawing or a chart and label all the parts.
- Discuss** – Take a look at the good and bad points of something and give a detailed answer.
- Enumerate** – Provide an answer in an outline form by listing all the facts point by point.
- Evaluate** – Similar to discussion but more emphasis is placed on opinions.
- Explain** – You talk about something telling how and why it happened.
- Illustrate** – You explain your answer in writing along with a drawing or chart to make your point.
- Interpret** – State, in your own words, the meaning the author is trying to convey.
- Justify** – Prove your answer by providing evidence.
- List** – Same as enumerate, just record the answer point by point.
- Outline** – Make a summary with major and minor points.
- Prove** – Same as justify, presenting evidence.
- Relate** – Similar to comparing. Emphasize points which are similar and describe them in writing.
- State** – Briefly talk about the main points omitting details.
- Review** – Critically examine or summarize the major parts of a problem.
- Summarize** – Present the main points.
- Trace** – Start at the beginning of an event and follow its progress through to the end, describing major points along the way.

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Crossword Puzzle: A Comprehension Strategy

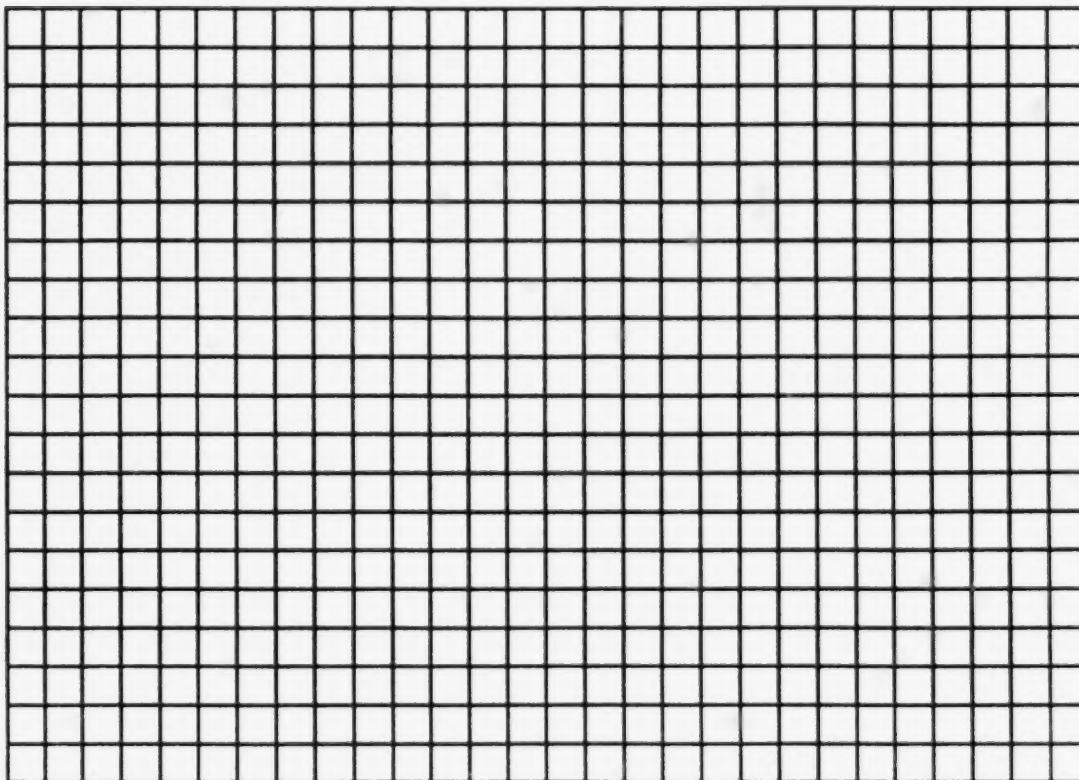
Purpose

- to increase students' word recognition ability and their ability to think creatively and sequentially.

Procedure

- Step 1: Think of a particular topic and the terms related to that topic (e.g , BUSINESS - profit, loss, employer, employee, accounts, etc.)
- Step 2: Write the terms on the grid, interlocking letters as often as possible, going across and down the page.
- Step 3: Lay another sheet of paper over the grid and trace only those squares that contain letters. Or, with felt tip marker, darken unused squares to form dark background.
- Step 4: Number the first square of each word going across and down.
- Step 5: Number the "clues" or definitions in the same order in which you numbered them on the grid. (Put clues at the bottom of the page or on a separate sheet of paper.)
- Step 6: Have students complete the crossword puzzle.

Crossword Puzzle Grid



Descriptive Writing: An Evaluation Guide

Purpose

- to help students focus on the components of a descriptive writing assignment.

Procedure

The following evaluation guide is given to students before their assigned writing project or task.

Writing Assignment		
Your assignment will be marked using the criteria below. Try answering the questions and marking your assignment yourself; then revise your work to obtain a better mark.		
	Possible Score	My Score
1. Did you list facts and opinions? Have you presented them separately?	4	
2. Is each fact and opinion presented in a full sentence? If you read each one separately, can you tell what it means without referring to the others?	4	
3. Are any of your statements not observations? Deduct one mark each time you find: • an opinion • an inference • a belief, or • a suspicion.	5	
4. Did you collect any quantitative data that can be tabulated? Have you presented these in a data table? Be sure your table has: • a title • a heading for each column, and • a unit expressed for each	2 3 <u>2</u>	
Total:	20	

Scale Point

- The lists offer little accurate description. The description obtains 0 to 9 points.
- Accurate description has been provided, but either the format of the presentation is weak or a great deal of irrelevant material – opinions, inferences, beliefs, suspicions – has been included. The description obtains 10 to 12 points.
- Accurate description has been effectively presented. Data are appropriately tabulated. The description obtains 15 to 20 points.

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First Letter Mnemonic: A Remembering Strategy

Purpose

- to assist students to remember word lists and other groups of information.

Description of Strategy

- F – Form first letters into words (uppercase)
- I – Include other letters (lowercase)
- R – Rearrange letters
- S – Form a sentence
- T – Try it many times

Procedure

Step 1: Form first letters into word, using uppercase letters (acronym).

Example: Types of Questions – Literal, Inferral, Evaluative, Decoding
LIED or DELI

If this step doesn't work, try Step 2.

Step 2: Include other letters (lowercase).

Example: Musical Instruments (Woodwinds).

F	O * r	C	E	P * t	S
Flute	Oboe	Clarinet	English Horn	Piccolo	Saxophone

* Lowercase letters help to form word (mnemonic), **but do not** stand for a key word.

If this step doesn't work, try Step 3.

Step 3: Rearrange letters.

FOrCEPtS above was formed by rearranging the letters F P C O E S and adding r and t. Step 3 usually follows Step 2 in that for most word lists the first letters do not form a word without some rearrangement. If Step 3 doesn't work, try Step 4.

Step 4: Sentence formation (acrostic).

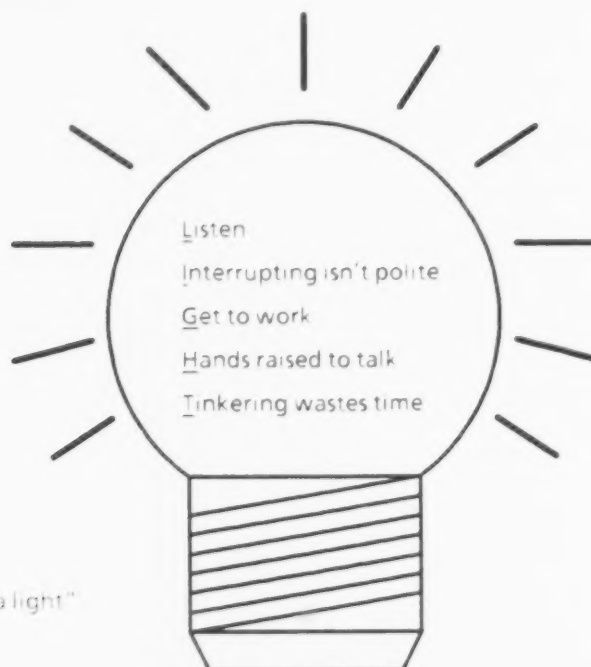
Father	Played	Clarinet	Or	English (horn)	Softly
Flute	Piccolo	Clarinet	Oboe	English Horn	Saxophone

Step 5: Try it many times. This step is a reminder to manipulate letters and words until a mnemonic is formed. Note the use of the word **F I R S T** as a mnemonic (Form, Include, Rearrange, Sentence, Try) to help remember this strategy.

Suggested Application

- as a strategy to remember key words that relate to key concepts for an exam (studying strategy)
- to aid retention of strategies generated or taught.
- home applications: shopping lists, things to do, etc.
- use first-letter mnemonic strategy to aid students in remembering classroom rules.

Example: **L I G H T** Strategy*



"Flip a switch and be bright like a light"

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Flow Charting: A Process Analysis Strategy

Purpose

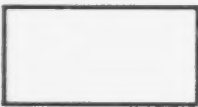
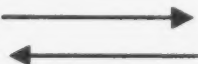
- to enable students to identify the order and sequence of steps in a procedure or process

Description of Strategy

Students are taught to construct flow charts that enable them to analyze the process involved in completing a task by breaking it into sequential steps, which then can be followed through to complete the task.

A flow chart diagram consists of a set of symbols connected by lines, which usually illustrate the sequential progression of steps involved in a procedure or activity

Symbols used are:

A circle or oval		start, stop
A diamond		question, decision
A rectangle		action
An arrow		directional lines

Procedure

1. Provide students with a task or have them identify a task
2. Identify the components of the task.
3. List the components in sequence.
4. Draw a flow chart to show the major components of the task in sequence

Improving the Instructional Environment

Purpose

- to enhance students' learning by improving the instructional environment

The instructional environment plays a vital role in the development of creative thinking. Creative thinking can be fostered by:

- using appropriate questioning techniques
 - open-ended questions, ambiguous problems. (e.g., Find 1000 of something.)
- responding with openness
 - respect, acceptance and delight in unusual ideas.
- providing enrichment activities
 - exciting materials that stimulate thinking
- allowing time for production
 - frequent opportunities for creative production
- providing time for idea development
 - to play, experiment, suppose, test, question, guess, and expand the boundaries of conventional thought

Description of Strategy*

● Affective Skill Development

A stimulating instructional environment accommodates the development of the affective skills which are the "feeling processes" of productivity. These affective skills are:

CURIOSITY – the knack of wondering or puzzling

You are curious when:

- you take a _____ apart to see what is inside
- you ask "Why?"
- you wonder "What if...?"

RISK TAKING – the courage to attempt something that may leave you open to criticism

You are a risk taker when:

- you make a guess
- you experiment
- you try something new

COMPLEXITY – seeking an easier method; organizing, ordering

You are showing a preference for complexity when:

- you set up an assembly line to make _____
- you make up a schedule
- you plan and organize a _____

IMAGINATION – visualizing, building images in the mind

You are using your imagination when:

- you picture the setting in a story
- you fantasize the outcome of _____
- you daydream

- **Cognitive Skill Development**

The cognitive skills are the thinking processes of creativity. These are skills that can be taught, practised, and applied in other areas of the curriculum. It is important to remember that creative thinking is a complex process which combines both the cognitive and affective skills. The following cognitive skills may be developed in each of the thematic learning activities:

FLUENCY – the ability to think of many possibilities.

You are being fluent when:

- you can list many ways to _____
- you can think of several ideas for _____
- you can think of more than one solution for _____

FLEXIBILITY – the ability to shift directions of thought.

You are being flexible when:

- you can examine an issue from more than one viewpoint
- you can find other uses for a _____
- you can find different kinds of reasons to _____

ELABORATION – the ability to stretch an idea to make it more interesting.

You are being elaborate when:

- you add details and imagery to your story
- you add pictures, maps or tables to make a point clearer
- you add supplementary ideas to a main idea

ORIGINALITY – the ability to express unusual alternatives.

You are being original when:

- you make something quite different from everyone else
- you can think of a new way to do something
- you think of an idea nobody else thought of.

* From *Education Plus: Sample Lessons in Creative Thinking*, pp. 3, 4. Copyright 1986 by the Education Plus Team, Calgary Catholic Schools. Reprinted by permission.

LEEP, CHECK: Presentation Strategies

Purpose

- to provide students with memory cues when making oral presentations.

Description of Strategies

LEEP

- L: Loud and clear
- E: Expression
- E: Eye contact
- P: Posture

CHECK

- C: Checking the audience
 - Is everyone ready to listen?
- H: Having eye contact with the audience
- E: Expressive
- C: Clear
 - Make sure you speak so that everyone can understand your words.
- K: Keen to be heard
 - Show you're interested in what you're saying; be enthusiastic.

Teaching example

Reinforce the use of LEEP or CHECK by integrating it into your marking scheme when presentations are made to the class. Reinforce to students that whenever they're speaking to others, whether in a group or individually (party, playground, dinner table, etc.), the same principles apply.

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Listening Guide

Purpose

- to enhance students' listening ability.

Procedure

Provide each student with a copy of the listening guide below to use as preparation for listening to an oral presentation by a guest speaker or other class member. Have students use their responses to the questions as a basis for later class discussions.

Use this guide as you listen to spoken presentations in class. When you have become familiar with it, you may wish to create your own personal listening study guide *

1. What is the general subject of this talk?
2. What is the specific occasion? (Give name of class, speaker's name, and date)
3. What is the chief point or main message? (This may be answered *after* the talk.)
4. What organizational plan does the speaker follow? (Is it enumeration? comparison and contrast? cause and effect? generalization plus examples? a time or sequence pattern? Is it a mixture of patterns?)
5. What transitional expressions does the speaker use?
6. Does the speaker digress from the main point?
7. In what ways do you differ with the speaker?
8. What interested you the most? the least?
9. What is your personal reaction to the main point of the talk?
10. Write the speaker's main point in three sentences or less.

The following questions may also be used to stimulate discussion on the importance of effective listening skills:

- What helps you listen in class? at home? in the work place?
- What prevents you from listening?
- How do you know when it is important for you to listen?
- What do you do to make yourself listen when you know you should, but you are really don't want to?

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PMI: An Exploration Strategy

Purpose

- the PMI strategy is designed to aid students to explore a subject systematically indepth, rather than just support their position. They are instructed to direct their attention to the "Plus" (P) aspects, then the "Minus" (M) aspects, and finally the "Interesting" (I) aspects. It also allows them to view how others think.

Procedure

1. A topic for discussion is assigned or arises during classroom dialogue.
2. Students are divided into small groups (of three to four) and instructed to divide their page into three columns labelled P, M, and I.
3. They are directed to think first about "Plus" (P) points regarding the discussion topic, and to write these points in the 'P' column. The same procedure is followed, in order, for the "Minus" (M) column and the "Interesting" (I) column. All points raised are to be accepted without judgment.
4. The points raised in the small groups are shared with the full class.

Suggested Applications

1. This strategy can be used as a way to self-analyze and evaluate present strategies used by pupils. For example, the assigned topic could be "Do a PMI on the use of RAP strategy during the reading lesson we just completed". This analysis, with the whole class group, should lead to modification of the strategies as your students apply them to various situations and settings.
2. Additionally, the PMI strategy could be used to assist pupils to think systematically and evaluate their positions in other domains (academic discussion topics, social domains, etc.)

Adapted from deBono's CORT (1983). From *A Strategies Program for effective Learning and Thinking* (Cognitive Education Project, University of Alberta), p. 199. Copyright 1987 by B. Mulcahy, K. Marfo, D. Peat and J. Andrews. Reprinted by permission.

Positive Self-Talk: A Self-Concept Building Strategy

Purpose

- to assist students to enhance their self-esteem.

Procedure

1. Present your class with an assignment that is challenging for all students. As they attempt to complete the work, use verbal praise, directed toward the efforts being shown. Phrases such as "You can do it. You're really trying hard", etc. should be used. Circulate around the room documenting overt student comments. Midway through task completion, stop the students in order to discuss:
 - why you were using praise as a motivation
 - your observation of their overt speech (if they were speaking to themselves, what were they saying?)
2. Guide the discussion toward the goal of understanding that, just as teachers use praise as a tool to motivate students, so individuals can use positive self-talk as a strategy to motivate themselves. Through the use of positive self-talk they can redirect their attention **away from** self-criticism, feelings of incompetence, and expecting to fail, **toward** the learning task at hand.

Suggested Follow-up Activities

Whenever students appear stressed, remind them to monitor their thoughts and to overtly (in a whisper) use positive self-talk. In-class test preparation periods are ideally suited to this.

If students lack a positive vocabulary, spend time brainstorming with them to create a 'master list' of positive phrases for their use.

RAP: A Comprehension Strategy

Purpose

- to help students develop a strategy to improve their ability to comprehend written text.

Description of Strategy

R – Read

A – Ask

P – Put

Procedure

Have students:

1. Read the paragraph or instructions.
2. Ask themselves what they have just read.
3. Put the material they have just read into their own words.

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Reinforcing the Positive

Purpose

- to enhance I.O.P. students' self-esteem.

Procedure

Carefully observe individual student behaviours and, at every opportunity, reinforce correct and positive behaviour with words of praise. The following list provides 99 ways to say "you did a good job".

1. SUPER GOOD!
2. You've got it made
3. SUPER!
4. That's RIGHT!
5. That's good
6. You're really working hard today
7. You are very good at that
8. That's coming along nicely
9. GOOD WORK!
10. That's much better!
11. I'm happy to see you working like that
12. Exactly right
13. I'm proud of the way you've worked today
14. You are doing much better today
15. You've just about got it
16. That's the best you have ever done
17. You're doing a good job!
18. THAT'S IT!
19. Now you've figured it out
20. That's quite an improvement
21. GREAT!
22. I knew you could do it
23. Congratulations!
24. Not bad
25. Keep working on it, you're improving
26. Now you have it!
27. You are learning fast
28. Good for you!
29. Couldn't have done it better myself
30. You are a joy
31. One more time and you'll have it
32. You really make my job fun
33. That's the right way to do it
34. You're getting better every day
35. You did it that time!
36. You're on the right track now!
37. Nice going
38. You haven't missed a thing
39. WOW!
40. That's the way!
41. Keep up the good work
42. TERRIFIC!
43. Nothing can stop you now
44. That's the way to do it!
45. SENSATIONAL!
46. You've got your brain working
47. That's better
48. That was first-class work
49. EXCELLENT!
50. That's the best ever!
51. You've just about mastered that
52. PERFECT!
53. That's better than ever
54. Much better!
55. WONDERFUL!
56. You must have been practising
57. You did that very well
58. FINE!
59. Nice going
60. You're really going to town
61. OUTSTANDING!
62. FANTASTIC!
63. TREMENDOUS!
64. That's how to handle that!
65. Now that's what I call a fine job
66. That's great
67. Right on
68. You're really improving
69. You're doing beautifully
70. Superb!
71. Good remembering!
72. You've got that down pat!
73. You certainly did well today
74. Keep it up!
75. Congratulations! You got it right
76. You did a lot of work today!
77. Well, look at you go!
78. That's it!
79. I'm very proud of you
80. MARVELLOUS!
81. I like that
82. Way to go!
83. Now you have the hang of it
84. You're doing fine
85. Good thinking!
86. You are really learning a lot
87. Good going
88. I've never seen anyone do it better
89. Keep on trying!
90. You outdid yourself today
91. Good for you!
92. I think you've got it now
93. This is really great!
94. Good job. (student's name)
95. You figured that out fast
96. You remembered!
97. That's really nice
98. That kind of work makes me happy
99. It's such a pleasure to teach when you work like that!

SCAMPER: An Idea Generating Strategy

Purpose

- to assist students to think creatively.

Description of Strategy

- S – Substitute
- C – Combine
- A – Adapt/or Add
- M – Magnify/or Minify/or Modify
- P – Put to other uses
- E – Eliminate
- R – Rearrange

Procedure*

Students are encouraged to use each letter of the mnemonic to generate answers to related questions.

SUBSTITUTE

- Who else can do this?
- Can another source of power, another person or place, be used instead?
- Can another ingredient or material be used?
- Can something else be used instead of some part?

COMBINE

- Can parts of ideas be combined?
- Can purposes or uses be combined?
- Can functions or objectives be combined?

ADAPT

- What other ideas does it suggest?
- What can you copy, making some changes?
- What can you imitate?

ADD

- Add more details
- Add another just like it
- Add more parts, pieces

MAGNIFY

- What would it be like if it were made bigger?
- Can you increase the time, strength, or value?
- What would it be like if you increased the number?

MINIFY

- What would it be like if it were smaller?
- Can it be made lighter, lower, cheaper?
- What if it became rare?

MODIFY

- Change the colour, shape or materials.
- Can you change the function, purpose, or condition?
- What new twists can be made?

PUT TO OTHER USES

- Can it be put to another use?
- Can you modify it and put it to another use?
- Can you find something else to use in its place?

ELIMINATE

- Remove some of the parts or characters.
- Eliminate some of the functions, materials or uses.
- Remove the beginning or end.

REARRANGE

- Can you interchange parts?
- Can you rearrange the pattern or plan?

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SCORER – A Test-Taking Strategy

Purpose

- to prepare students to take exams that include written questions and/or instructions

Description of Strategy

- S – Schedule time
- C – Identify clue words
- O – Omit difficult questions
- R – Read directions
- E – Estimate answers
- R – Review

Procedure

This strategy is designed to aid students to approach test taking systematically.

1. **S – Schedule your time.** The student must consider:
 - (a) How many questions are there?
 - (b) What are the weightings of the various questions?
 - (c) Which questions are easy, difficult, fast, etc.? The time needed to complete each section should then be estimated. (e.g., a multiple choice test of 120 questions with a one hour time limit is: $60/120 = .5$ minutes per question)
2. **C – Clue words.** Most exam questions have built-in clues. Use them.
3. **O – Omit the difficult questions.** The following procedure is suggested to aid the students in this step:
 - (a) Move quickly through the test for the initial pass; don't dawdle, keep moving.
 - (b) When a question appears easy or you're certain of the answer – answer it.
 - (c) On the first pass, skip those questions that appear difficult. When a question is missed, mark the margin with a symbol (X or +) to know that you need to come back to it.
 - (d) When the easy and certain questions are answered, return to those skipped and marked with a symbol, and try again.
 - (e) If you still are unable to answer on the second pass, mark the questions again by changing the symbol to a circle or a dot to skip. Keep moving.
4. **R – Read the directions for the test and each test question very carefully.**
5. **E – Estimate your answers.** This could have two meanings, according to the type of test question:
 - (a) Those involving calculations or problem solving – roughly estimate the "ball park" figure.
 - (b) Multiple choice – take an educated "guesstimate" at a possible answer if you are unable to answer the question on the third pass. Never leave questions unanswered unless you will be penalized for wrong answers.

6. Review:

- (a) Use every minute available to you. Return to the double checked (+ + or ✓ ✓) difficult questions first. Look for new clue words and hints. Next, review the single checked (+ or ✓) questions, and finally, if there is time, the unchecked ones.
- (b) Only change answers if you have a good reason to do so.
- (c) Be sure all questions are answered.
- (d) Make certain that your name is printed on each sheet.

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Speech Evaluation Guide

Purpose

- to enable students to recognize the components of a good oral presentation and to enhance their ability to make oral presentations. The main purpose of oral presentations is to get students to develop self-confidence in talking in front of a group. They must try to establish a comfortable rapport with the group and control the signs of nervousness. Choosing a topic they know a lot about, and being well prepared will get them "off the hook" so they can work on the main purpose.

Procedure

In consultation with each student, decide on a date for an oral presentation. Encourage students to research their topic and practise their presentation. Have students use the speech evaluation guide to provide feedback to presenters.

SPEECH EVALUATION GUIDE		
Speaker's Name:	_____	
Topic:	_____	
Date:	_____	Duration: _____ (minutes)
	<u>Yes</u>	<u>Needs Improvement</u>
1. The speaker was adequately prepared for the talk.	_____	_____
Comment: _____		
2. There was a definite opening, body and conclusion to the talk.	_____	_____
Comment: _____		
3. The speaker attempted to make eye contact with the audience.	_____	_____
Comment: _____		
4. The speaker was able to control nervousness in front of the class.	_____	_____
Comment: _____		
5. The speech was audible and clear to all listeners.	_____	_____
Comment: _____		
6. The speaker used his notes/cards discretely so as not to interfere with the main purpose of the speech.	_____	_____
Comment: _____		
Comment on the speaker's strongest point: _____		
Give one or two specific suggestions for improvement: _____		

SPOT: A Social Problem-Solving Strategy

Purpose

- to assist students to recognize and to analyze a social situation systematically before it becomes a social problem.

Description of Strategy

S – Setting: Who? What? Where? When?

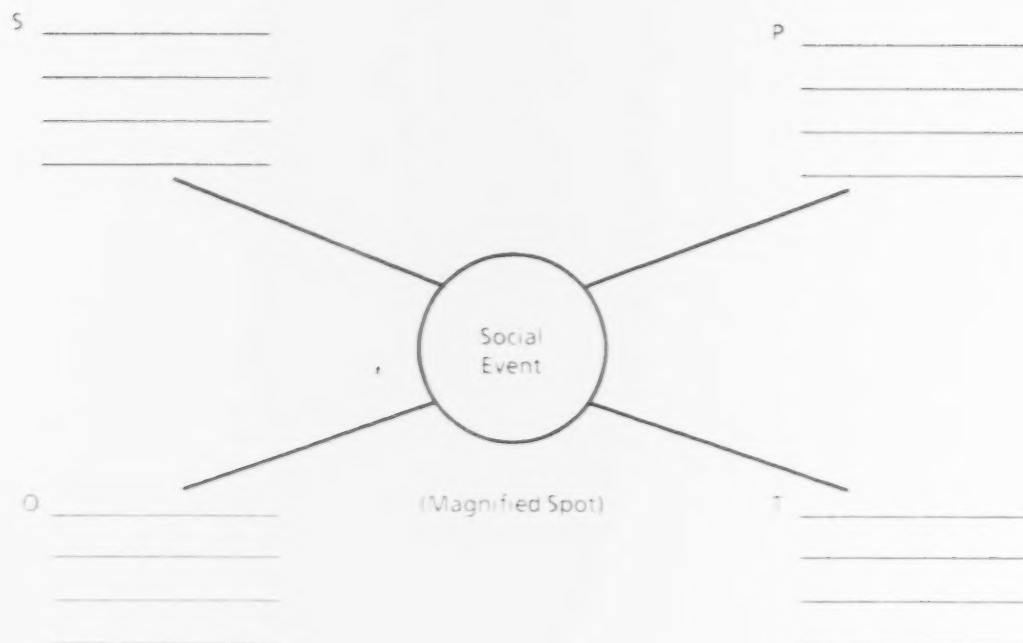
P – Problem: What's the situation to be solved?

O – Order of Action: What happened?

T – Tail End: What can be done next time?

Procedure

Problem-Solving Chart



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SQ3R: A Chapter Attack Strategy

Purpose

- to enable students to use a systematic approach to reading and comprehension.

Description of Strategy

- S - Survey
- Q - Question
- 3R - Read, recite, review

Procedure

- 1 Survey - quickly read; (a) chapter introduction (BEGINNING)
(b) chapter summary (END)
(c) first sentence in each paragraph
(d) visual aids (pictures, graphs, diagrams)
- 2 Question - ask a question based on each subtitle
- 3 Read - read each section to find the answer to your question
- 4 Recite - write down the answer
- 5 Review - say or write a summary of what you've learned

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Writing Directions – An Evaluation Guide

Purpose

- to enable students to write and evaluate a project plan.

Procedure

Have students write and evaluate a project plan before proceeding with the project.

PROJECT PLAN EVALUATION		
	Possible Score	My Score
1. The title is present and gives an indication of the purpose of the directions. An example might be, "How to Fly a Kite".	2	
2. Supplies and equipment are all identified and correctly classified.	2	
3. The instructions are listed: ● in complete sentences ● in the correct sequence ● without any omissions ● in a numbered order ● using present tense ● without addressing 'you'	3 4 4 2 2 1	
4. Safety hazards, if they exist, are identified and noted in the appropriate location	2	
5. The overall organization is easy to follow	<u>3</u>	
Total	25	

Scale Point

- 0-10 The directions are incomplete and/or in an inappropriate format.
- 11-15 There are serious problems with format and there may be omissions.
- 16-19 The instructions are logical although there may be some weaknesses in format.
- 20-25 A clear set of directions is presented in a standard format.

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COURSE: BUSINESS EDUCATION

THEME: ALL ABOUT BUSINESS

THEMATIC LEARNING ACTIVITIES

	<u>SUGGESTED GRADE</u>	<u>SUGGESTED TIME (HOURS)</u>
A. Alphabetical Filing	8	5-10
B. Career Planning	8-9	5-8
C. Preparing to Keyboard	8	3-5
D. Keyboarding: The Alphabetical Keyboard	8	25-30
E. Telephone Directories: Who's Who and What's What?	8	8-10
F. The Telephone: Making the Connection	8	10-15
G. Keyboarding: Building Skills	9	20-25
H. Keeping on Track: Specialized Filing Systems	9	8-10
I. Operating a Small Business	9	20-25
J. The Receptionist: Creating the First Impression	9	8-12

COURSE: BUSINESS EDUCATION

THEME: ALL ABOUT BUSINESS

OVERVIEW

The ability to organize effectively and efficiently, to store and retrieve information, and interact through verbal, non-verbal, and electronic means of communication are essential skills in business and industry. These skills are traditionally taught in a business education program. The business education component of the I.O.P. Practical Arts, Grades 8 and 9 is addressed in the theme "All About Business".

The learning activities included in this theme provide the vehicle through which students develop an awareness of:

- business and office operations
- career opportunities related to the business and office operations occupational cluster
- how the concepts, skills and attitudes acquired in the business education component of the I.O.P. Practical Arts, Grades 8 and 9, are related to careers in the eight occupational clusters offered at senior high school:
 - Agribusiness
 - Business and Office Operations
 - Construction and Fabrication
 - Creative Arts
 - Natural Resources
 - Personal and Public Services
 - Tourism and Hospitality
 - Transportation

Teachers are encouraged to develop additional learning activities to meet the unique needs and interests of individual students and to maximize the potential to integrate with other subject areas at the local school level.

Opportunities exist within this theme for developing community partnerships.

- Community in the classroom
 - Invite local personnel to discuss and demonstrate business and office related procedures and practices. Guests may include:
 - school secretary
 - office receptionist
 - clerk (bank, office, mailroom, sales)
 - warehouse worker
 - telephone operator
 - librarian
 - office manager
 - personnel agency worker
 - typist/word processor
 - entrepreneur; e.g., duplicating services, agency operator
- Classroom in the community
 - Involve students in the selection and organization of learning activities within the community:
 - field trips
 - mentorships (pairing of students with company employees)
 - job shadowing experiences (students spend time in the workplace observing an employee on the job)
 - interviews

THEMATIC OBJECTIVES

This theme is designed to enable students to:

- develop an understanding of business and office operations
- investigate career opportunities in business and office operations
- recognize the types and uses of technology in business and office operations
- develop basic competencies in handling business and office equipment and supplies
- recognize entrepreneurial opportunities within the business and office operations occupational cluster
- understand that the knowledge learned and the skills and attitudes developed in business education are transferable to other occupational clusters

PROCESS OBJECTIVES

Using the learning activities as the context for instruction, students will acquire the ability to:

- employ an appropriate problem-solving/decision-making model (when planning a project or discussing issues)
- participate actively in planning in-school and community partnership activities
- communicate effectively and efficiently
- relate well to others
- plan and organize short- and long-range course related tasks and projects
- maintain a work area to predetermined standards
- produce work to at least minimal accepted office standards

ATTITUDE OBJECTIVES

Attitudes developed throughout this theme will enable students to:

- appreciate the role of business and office operations in the workplace
- appreciate the need for work standards, including safety and quality control
- recognize the effect of technological change in the workplace
- respect the rights of others
- accept responsibility for individual behaviour and performance
- appreciate that learning is a lifelong process

INTEGRATION ACTIVITIES

Cooperative planning among teachers is integral to the success of the Integrated Occupational Program. Suggestions for integration are outlined in column three of the *I O P Practical Arts, Grades 8-9 Program of Studies Curriculum Guide*, and additional suggestions are provided with each learning activity in this *Teacher Resource Manual*. In schools where a different teacher is responsible for each of the three courses that comprise the I O P Practical Arts, Grades 8 and 9 (Business Education, Personal and Public Services, Technical/Occupational) – cooperative planning is essential.

Teachers are encouraged to attempt these suggestions and to create new sequences of activities suited to meeting the needs and interests of students at the local school level.

THEME: All About Business
LEARNING ACTIVITY: Alphabetical Filing
GRADE (suggested): 8
TIME (suggested): 5-10 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the need for organizational skills in the workplace
- understand the purpose and function of an alphabetical filing system.

Skills:

- develop skill in indexing personal names and placing them in correct unit order
- use the alphabetical filing system to file by surname.

Attitudes:

- appreciate the need for organization

RESOURCES

3" x 5" cards

A class set of telephone directories (outdated directories are usually discarded by companies in March of each year)

COMPUTER COURSEWARE

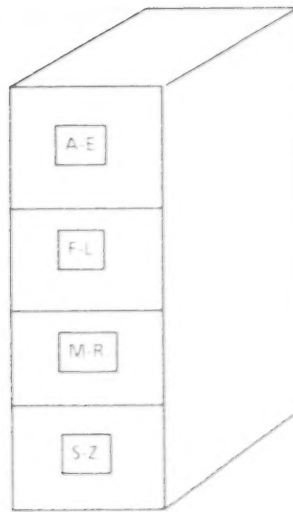
Letter Recognition and Alphabetization by Milliken Publishing Company. This two-disk package provides ninety-four problem levels of drill and practice in letter recognition, alphabetical sequencing of letters, and alphabetizing by first through seventh letter.
Target audience: Grades 1-8

TEACHER BACKGROUND INFORMATION

Alphabetical Filing Systems

Filing is a process of arranging and sorting records so that they can be retrieved easily, with a minimum of time and effort. Files are essential to all businesses. Correct filing methods and procedures save valuable working time.

While there are a number of filing systems (numeric, subject, geographic, etc.), the alphabetical filing system is the most commonly used. In an alphabetical filing system, files are arranged by names of persons, places, things, or organizations in A-Z order.



Steps in Alphabetizing Names

There are three steps that are essential before arranging names in alphabetical order:

1. Indexing
2. Dividing into filing units
3. Alphabetizing

Step 1: Indexing

- Indexing means determining the most important part of a name and placing it at the front. In the case of names, correct indexing order is:

e.g.,

<u>Last Names</u>	<u>First Name</u>	<u>Middle Name or Initial</u>
Jones,	Edward	George
Watson,	Helen	F.

The last name is usually separated from the first name with a comma.

Step 2: Identifying Filing Units

- The second step in alphabetizing a name is to divide the name into filing units. Each word, initial, or abbreviation is a separate filing unit.

<u>Name</u>	<u>Unit 1</u>	<u>Unit 2</u>	<u>Unit 3</u>
Alice Jacobs	Jacobs	Alice	
Michael J. Fenton	Fenton	Michael	J.
Janice Wanda Litke	Litke	Janice	Wanda

Step 3: Alphabetizing

- After names have been indexed and placed in descending unit order, they are ready to be alphabetized - that is, placed in A to Z order.

There are a number of rules that govern correct alphabetizing order.

RULE 1

LAST NAME FIRST FOLLOWED BY FIRST NAME, MIDDLE NAME OR INITIAL

For example, the three names John R. Rogers, Richard C. Rogers, and Anthony C. Rogers would be filed as:

ROGERS, ANTHONY C

ROGERS, JOHN R

ROGERS, RICHARD C.

RULE 2

When comparing two names to be arranged in alphabetical order, NOTHING COMES BEFORE SOMETHING. That is, a name with a blank unit (such as no middle name or initial) would come before the same name that contains a middle name or initial. For example, ALTON, JOHN comes before ALTON, JOHN J.

RULE 3

SHORTER NAMES COME BEFORE LONGER NAMES

BERN, JASON D

BERN, JASON H.

BERNBAUM, ARRON A.

RULE 4

IF THE LAST NAMES ARE THE SAME, THE FIRST NAME DETERMINES ORDER

For example, the three names William Majors, Ralph Majors, Randall Majors would be filed as

MAJORS, RALPH

MAJORS, RANDALL

MAJORS, WILLIAM

RULE 5

IF THE LAST AND FIRST NAMES ARE THE SAME, THE MIDDLE NAME DETERMINES THE CORRECT ORDER. For example, the three names John Randall Shore, John Phillip Shore, John Aaron Shore would be filed as:

SHORE, JOHN AARON

SHORE, JOHN PHILLIP

SHORE, JOHN RANDALL

RULE 6

PREFIXES ARE PART OF THE LAST NAME. For example, the three names Mazo de la Roche, Phillipe de Tonnancouer, Jacques McShore would be filed as:

de la ROCHE, MAZO

de TONNANCOUER, PHILLIPE

McSHORE, JACQUES

The prefixes Mc and Mac should be filed as they are written. St. is filed as Saint rather than "St." For example, the four names Agnes McKegney, Arthur MacGregor, Rodney Strange, Rene St. Martin would be filed as:

MacGREGOR, ARTHUR

McKEGNEY, AGNES

ST. MARTIN, RENE (remember "SAINT" not "ST")

STRANGE, RODNEY

RULE 7

A NICKNAME SHOULD BE CHANGED TO A GIVEN NAME FOR FILING. The nickname may be shown in brackets. For example:

Bill Jones becomes
Liz Stannard becomes

JONES, WILLIAM (BILL)
STANNARD, ELIZABETH (Liz)

RULE 8

HYPHENATED NAMES SHOULD BE TREATED AS ONE UNIT. For example, Rodney Smith-Jones, Phillip Fort-Franklin, and Rupert Aston-Martin would be filed as:

ASTON-MARTIN, RUPERT
FORT-FRANKLIN, PHILLIP
SMITH-JONES, RODNEY

STUDENT ACTIVITIES

Alphabetical Filing Systems

1. Using examples from your local school or community, have student correctly alphabetize word lists of not more than ten items; such as,
 - the sports they most enjoy
 - their favourite foods.
2. Have students make up subject tabs and arrange their notebooks in alphabetical order.

Indexing

3. Have students study the white pages of a telephone directory to see practical examples of names that are indexed. Use the names of prominent community members as a focal point for this study.

Identifying Filing Units

4. Given a list of the complete names of students in the class, have students use markers to colour code the names into filing units: red for unit 1, yellow for unit 2, green for unit 3, and so on. Be sure to use given names rather than nicknames.

Alphabetizing Personal Names

5. The rules for indexing and filing personal names can be complex. To help students develop a better understanding of the rules and to add interest to the lessons, develop exercises based upon names from your local community. For example:
 - names of teachers on staff
 - names of the school council members
 - members of the town council
 - list of the basketball team members.

6. Have students prepare a personal telephone directory of their friends, neighbours, and relatives, using correct indexing and alphabetizing skills. (Often, local telephone companies provide blank personal directories as a public relations service. Using these would make this activity more realistic.)
7. Make up a set of index cards with fifty personal names printed in correct indexing order. Encourage students to place them in correct alphabetical order in the least amount of time.

Variation. Prepare duplicate sets and make the exercise into a class game by dividing the class into teams and awarding points for the first team to correctly identify:

- the first name in the series
- the third name in the series
- the middle initial of the fifth name in the series, and so on.

8. Using a class set of telephone directories:
 - a. construct an exercise whereby students must use their alphabetization skills to locate the telephone numbers or addresses of local community people (e.g., mayor, dentist)
 - b. develop a classroom game to improve alphabetization skills by dividing the class into teams and awarding points for the first team to locate correctly a given name, address, or telephone number
9. Provide daily practical experience in filing personal names by having each student prepare an individual file folder with their name correctly captioned. Store these folders in alphabetical order in an easily accessible place. Encourage students to take their folder at the beginning of each class period, place completed assignments ready for marking in the folder at the end of the period, and return it to its correct alphabetical place. (Teachers should return assignments to individual folders after marking.)

Community Partnerships

10. a. Invite the school secretary to speak to the class on the importance of school filing procedures.
- b. Arrange a tour of a local insurance office, real estate office, etc., to see a filing system in use.
- c. Invite an employment officer (e.g., Canada Manpower, Hire-A-Student, Personnel Officer of a local company) to speak to the class on possible careers involving the business skill of filing.

Integration Across the Curriculum

Language Arts – Join the language arts class for a tour of the school library. Business education students will appreciate the demonstration of alphabetical filing used in shelf stacking, card files, etc., while language arts students will develop an essential awareness of material necessary for report writing.

Science – Tour the science lab to note the organization of chemicals. Are they arranged alphabetically? Grouped by categories?

THEME: All About Business (Personal and Public Services, Technical/Occupational)
LEARNING ACTIVITY: Career Planning
GRADE (suggested): 8 and 9
TIME (suggested): 5-8 hours each grade

LEARNING OBJECTIVES

The student will:

Concepts:

- recognize the job search as a process
- identify the basic stages of the job search process
- understand the difference between a job and a career.

Skills:

- begin to use decision-making/problem-solving skills in the context of searching for a part-time job
- follow a set of instructions related to career planning.

Attitudes:

- appreciate his or her own potential
- appreciate the need for career planning
- appreciate the value of applying decision-making/problem-solving skills to the job/career search process.

RESOURCES

Student Resources

The Easy-to-Read Career Planning Guide This booklet is available free of charge from Alberta Career Development and Employment offices.

Teacher Resources

Brochures and program booklets from guidance centres of local high schools
Computerized career information programs; e.g., CHOICES
Magazines and journals representing the scope of the eight occupational clusters; e.g., Agricultural Journals, Photographic Magazines
Local newspapers
Creative Job Search Process, Employment and Immigration Canada
Job Seekers Handbook, Alberta Career Development and Employment

TEACHER BACKGROUND INFORMATION

This learning activity has been developed to provide students with an awareness of the need for career planning and the steps involved in securing that first part-time job. Teachers are encouraged to make the learning activity relevant to the student by focusing classroom discussions and activities on job situations students could reasonably be expected to obtain (e.g., child care, school custodial care, lawn/garden maintenance, paper routes).

This learning activity may be taught in any one of the three courses that comprise I.O.P. Practical Arts -- Business Education, Personal and Public Services, Technical/Occupational or, through cooperative planning, teachers may decide to use this learning activity in each of the three courses. The latter strategy provides students with opportunities to develop their career planning abilities in a variety of occupational cluster contexts.

Regardless of which strategy of presenting this learning activity is used, the concepts, skills and attitudes related to career planning should be integrated throughout each course, theme and learning activity associated with the I.O.P. Practical Arts.

As you plan your classes within this learning activity, consider:

- a. How will you ensure students understand the requirements of this learning activity?
- b. How will you stress the importance of career planning?
- c. How will you stress the need for awareness of career opportunities?
- d. What will you do to enable students to explore individual interests in a non-threatening environment?
- e. What preparation will be needed to enable students to complete personal and work forms?
- f. What preparation will be needed to involve community members as resource personnel?
- g. Will there be opportunities for students to explore and research alternatives?
- h. Will there be realistic experiences in which students can practise decision making and problem solving?
- i. What will the overall evaluation process include?

The Easy-To-Read Career Planning Guide provides a step-by-step description of the career planning process. This resource may be used to develop career planning skills throughout the five year Integrated Occupational Program, Grades 8-12. The following chart provides a suggested sequence for using this resource.

GRADE	THE EASY-TO-READ CAREER PLANNING GUIDE
8	pp. i, 1-6
9	pp. 7-16
10	pp. 17-28
11	pp. 29-38
12	pp. 39-46

Concepts, skills and attitudes taught in earlier grades should be applied and reviewed in each subsequent grade.

STUDENT ACTIVITIES

In both Grade 8 and Grade 9:

1. a. Encourage students to relate home, school and community activities to potential careers in one or more of the eight occupational clusters.
- b. Brainstorm to identify entrepreneurial activities that relate to each of the eight occupational clusters.
2. Assist students with the often threatening process of gaining a first part-time job by:
 - a. Explaining the part-time and full-time job market by reading job notice boards, the classified advertisements in the local newspaper, and by networking their interests to family members, relatives and friends.

- b. Discussing the career option of self-employment by exploring personal interests and skills and relating these to potential self-employment opportunities.
- c. Drawing a flow chart prior to searching for a part-time job to show individual needs, job interests, and strategies that might be adopted. Resource 1: "Job Search Model" may be used or adapted to suit the process used by individual students.
- d. Inviting students who have part-time jobs to discuss them with classmates, sharing such things as:
 - how they became aware of the job
 - what occurred in the interview process
 - what the advantages/disadvantages of the job are
 - the benefits of staying on the part-time job.

Resource 2: "The Importance of Knowing Yourself", Resource 3: "What You Should Know About Your Interests" and Resource 4: "Planning for the Future" may be used as handouts to stimulate discussions, facilitate individual presentations, and help students develop self-confidence in themselves and in their ideas. Students should be encouraged to express themselves freely and openly in both group discussions and in individual presentations.

Encourage students' participation by giving frequent reinforcement, for example,

"That's really interesting. How did you become interested in that hobby?"

"You're really good at _____. To which career path do you think these skills might lead you?"

Encourage the class to be interactive and supportive when a student is giving an individual presentation.

3. Discuss with students future careers and the alternative educational pathways that can lead toward different careers.

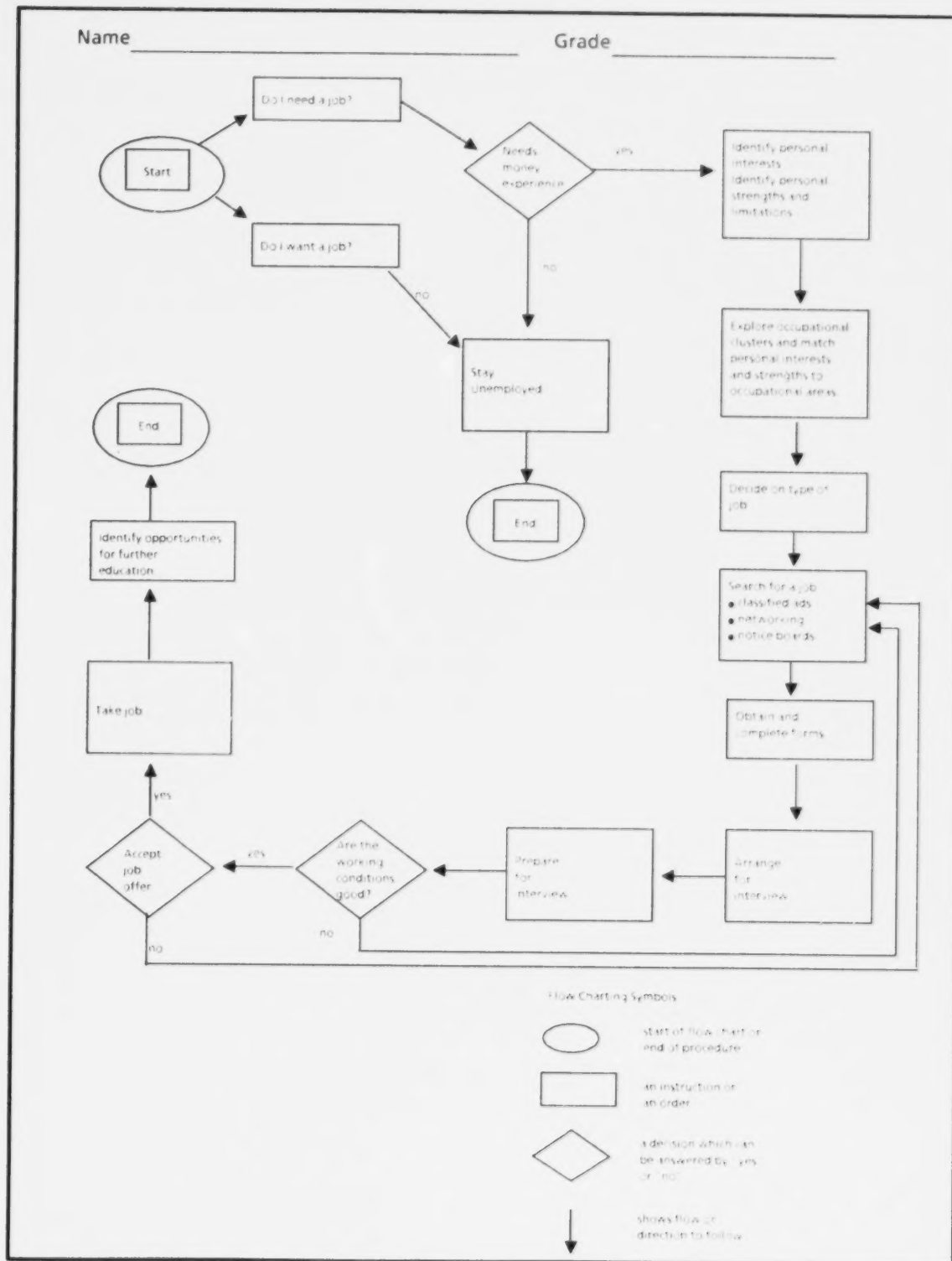
Integration Across the Curriculum

4. Language Arts - Meet with the language arts teacher. Some of the activities taught in the "Language Across the Curriculum" theme (e.g., filling in forms) are prerequisite skills to obtaining the first part-time job.

Community Partnerships

5. Visit local high schools to observe I.O.P. occupational and regular industrial education classes and home economics, beauty culture and business education classes.
6. Invite occupational and industrial education teachers from local high schools to discuss career options that relate to the courses they teach.
7. Invite high school students into the junior high classroom to discuss their likes and dislikes in the occupational courses they may be taking.
8. Invite a community member to speak to the class on what they look for when hiring someone for a part-time job, for example, a parent needing a baby-sitter; the manager of the local paper seeking delivery persons; etc.
9. Encourage students to conduct a taped interview with a member of the community who is engaged in an occupation of interest to the student.
10. After classroom discussion to narrow student interests, have each student job shadow a person in their chosen occupational area and report their findings to the class.

JOB SEARCH MODEL



THE IMPORTANCE OF KNOWING YOURSELF

Knowing your strengths and limitations will help to shape your career plan. While each person has the potential to do many types of work, it is important that career plans be realistic and achievable. Your career plan should also be something that you will be satisfied with when you achieve it.



Knowing yourself, your interests, aptitudes, values, and personality will help you make realistic career plans. It will also help identify what careers really interest you.

KEY TERMS:

INTERESTS

Are things you like to do.



APTITUDES

Are things you can do, or the ability to learn to do things.



VALUES

Are things you think are important in life.

PERSONALITY

Is a combination of the way you look, think, feel, and act.



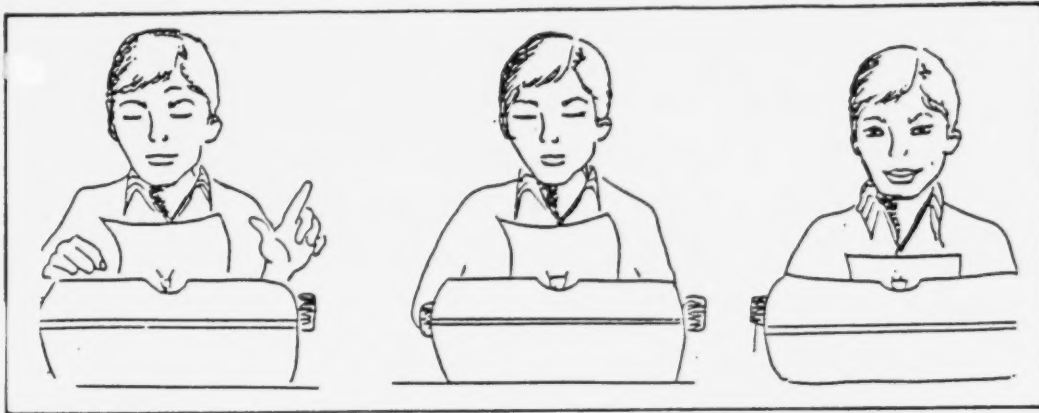
All these qualities affect the careers you will choose

You should think about how you want to live 10, 20, or even 30 years from now. What will you want to be doing? Where will you want to be living? What kind of life will satisfy you? Do some daydreaming!

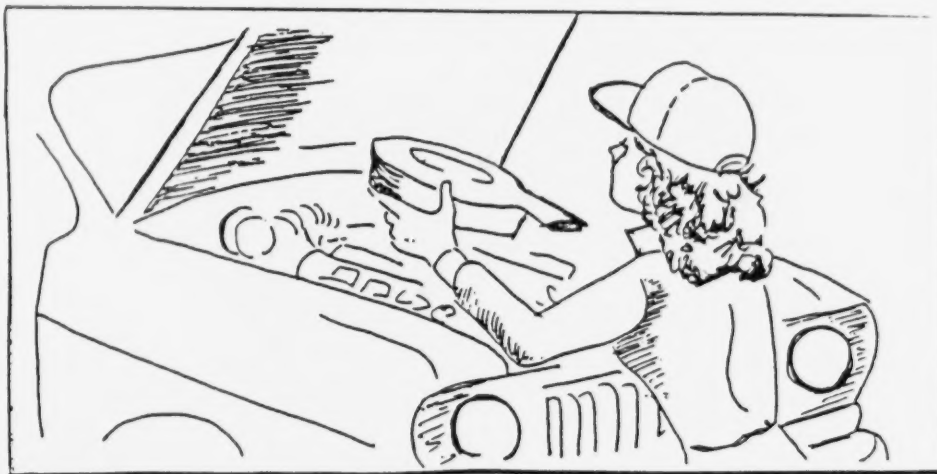
WHAT YOU SHOULD KNOW ABOUT YOUR INTERESTS

Your interests, or the things you like to do, can help you make decisions about career goals. They give you a better understanding of yourself.

Think about the things you like to do. Do you have any hobbies? What do you like to do in your spare time? Are there classes in school that you enjoy? What school activities interest you? Make a list of your **INTERESTS**.



Now think about things that you would like to do but haven't yet done. Make a list of these also. These are things that you should try. You may find that you like to do them and you can develop new interests.



The more interests you have, the better you will be able to identify the type of work you will want for a career. A hobby, for example, could lead to a career in that area of interest.



You can also identify your interests by thinking about situations you enjoy

- Do you enjoy activities that involve you with people?
- Do you like indoor or outdoor activities?
- Do you like activities that involve working with things?
- Are you interested in activities that involve information, ideas, or numbers?
- What work activities can you associate with your interests?

PLANNING FOR THE FUTURE

This assignment will let you do some planning for your future -- about your plans, what you want to do, and how you want to live. Dream a little. It could come true!

What Will You Be Doing...

	LIVING WHERE?	DOING WHAT?	MAKING HOW MUCH MONEY?
ONE YEAR FROM NOW			
FIVE YEARS FROM NOW			
TEN YEARS FROM NOW			
TWENTY YEARS FROM NOW			

THEME: All About Business
LEARNING ACTIVITY: Preparing to Keyboard
GRADE (suggested): 8
TIME (suggested): 3-5 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the importance of good posture
- recognize the manipulative parts of the basic typewriter/word processor keyboard.

Skills:

- display good posture at the keyboard
- set up a keyboarding work station
- demonstrate the use of the manipulative parts of the basic typewriting keyboard
- use basic skills of composition in producing a keyboarded paragraph.

Attitudes:

- appreciate the need for an organized work station
- value the mechanical and/or electronic keyboard as a communication tool.

RESOURCES

Class Resources

A class set of work stations, including typewriters, microcomputers or word processors, typists' chairs and copy stands (optional).

Stationery

Student Resources

The introductory pages of most keyboarding and word processing textbooks may be used to introduce the following units:

- Work station organization
- Posture
- The keyboard
- Keyboarding procedures

Teacher Resources

Teacher's Manual for Personal Applications in Typewriting. Farmer, G.M. Agincourt, Ontario: Gage Educational Publishing Limited, 1979.

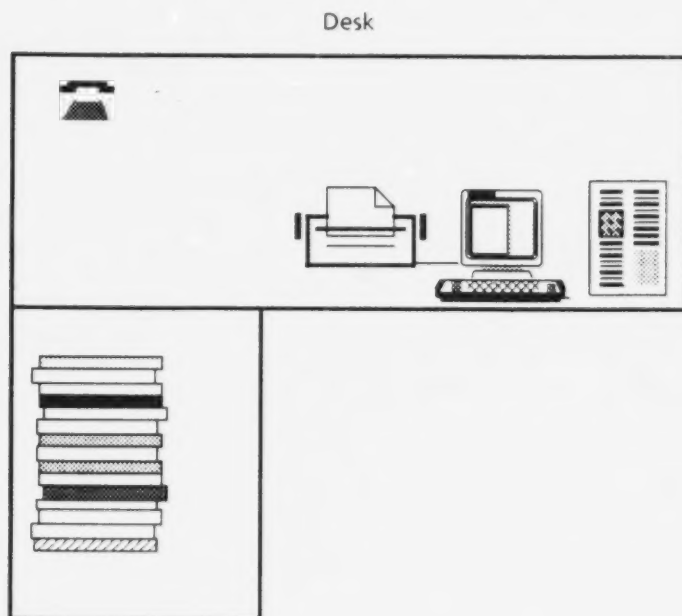
TEACHER BACKGROUND INFORMATION

Organization of the Work Station

A well-organized keyboarding work station has:

- the keyboard aligned with the front of the desk
- the copy set to the right of the keyboard
- supplies at the left of the keyboard.

The keyboarding work station may be arranged differently for left-handed operators.



STUDENT ACTIVITIES

1. Have students set up a work station following the teacher's instructions and demonstration.
2. Brainstorm: "Why is it important to set-up and maintain a well organized work station?" Have students categorize the reasons given into different headings; e.g., task management, appearance, time management.
3. Discuss: "Do other occupations require organized work stations? Which? Why?"

Community Partnerships

4. Visit the school office and/or the office of a local business:
 - observe the work stations of keyboard operators
 - discuss the value of maintaining a well organized work station.

CORRECT POSTURE AT THE KEYBOARD

When using a keyboard, the operator's posture should allow for:

- careful and accurate operation of the keyboard
- maximum support for the operator to minimize fatigue and undue stress on body parts, including back, arms, hands, and fingers
- ease of movement from one keyboarding task to others.

Correct posture includes:

- head erect, facing copy
- back straight and body leaning forward slightly
- body approximately a handspan from the edge of the typewriter
- body centered directly opposite the J key
- elbows held loosely at the sides of the body
- feet flat on the floor
- hands parallel to the slant of the typewriter keyboard.



Display posters and pictures that illustrate good posture. Reinforce correct posture regularly and demonstrate how changes in posture can improve keyboarding efficiency and personal well-being.

STUDENT ACTIVITIES

1. Have students demonstrate correct posture before starting a keyboarding task. (Reinforce correct posture regularly and correct incorrect body positions observed immediately.)
2. Brainstorm: "Why is correct keyboard posture important?" Have student categorize the responses under different headings; e.g., health of operator, task management, time management.
3. Play a game of "I Spy". Assign each student a number on a confidential basis. When a student is not demonstrating correct posture, call his or her number. (The student thus remains anonymous to classmates).
4. Encourage students to demonstrate correct posture by videotaping the class and encouraging students to assess the correct and incorrect postures of themselves and others.

Community Partnerships

5. Expose students to a variety of business and industry office situations. Have students:
 - identify potential locations and contacts for field trips and job shadowing opportunities
 - initiate personal contact with parents, relatives and other potential mentorship or job shadowing contacts
 - keyboard simple letters of introduction before participating in a field experience, and letters of thanks at their conclusion.

USING THE MANIPULATIVE PARTS OF THE KEYBOARD

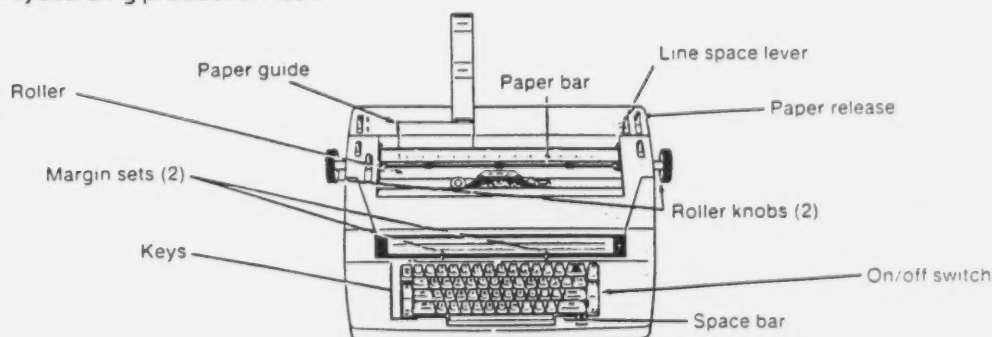
Identify the manipulative parts of the keyboard*:

- carriage return key
- platen knob
- margin stops
- paper bail
- paper guide
- paper release
- shift keys
- space bar.

(*Modify the content to match the typewriters, microcomputers or word processors being used.)

Explain and demonstrate:

- the exact location of each manipulative part of the keyboard
- the use of the various manipulative parts
- the location and use of each manipulative part prior to students using the keyboard for a specific keyboarding production task.



Display a chart of the typewriter/microcomputer/word processor that labels and depicts each of the manipulative parts. Encourage students to refer to each part by its correct name

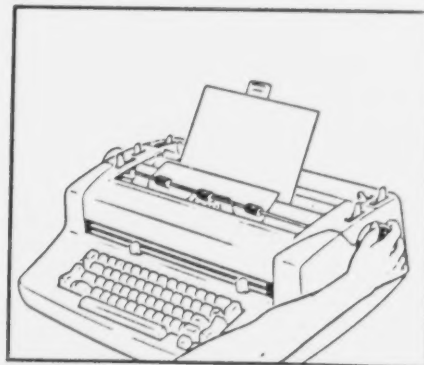
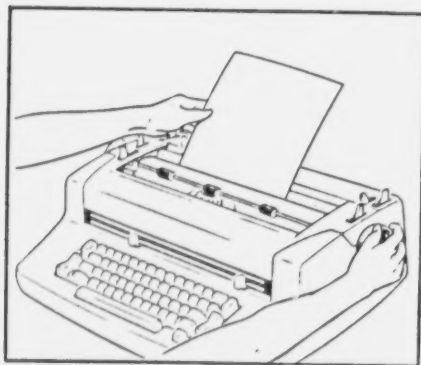
Inserting Paper:

Before keyboarding can begin, paper must be put in the machine. The keyboard keys should never be struck without having paper in the machine as doing so can damage the roller.

The following procedure* can be used to insert paper in a typewriter:

- check that the paper guide is set at zero
- pull the paper bar forward and up
- using the left hand, place a sheet of paper behind the roller while resting the paper's left edge against the paper guide
- using the right hand, turn the right roller knob away from your body to cause paper to enter the machine
- stop turning the right roller knob when there is just enough paper in front of the roller to fit under the paper bar
- push the paper bar back in place, making sure that its rollers are evenly spaced across the paper.

(*Modify the procedure to suit the equipment available)



Removing Paper:

- raise the paper bar
- locate the paper release lever and pull it forward using the right hand
- remove the paper using the left hand
- push the paper release back to its locked position
- turn off the machine
- clear the work station.

STUDENT ACTIVITIES

1. Have students properly insert and remove a sheet of paper in a typewriter or printer.
2. Have students set margins for different lengths of lines by setting the margin stops for a 20-, 30-, 40-, 50-, 60- and 70-space line.

Note: Each of these student activities can be timed. Use a timing clock, a classroom wall clock, or have each student use his or her wristwatch to record time taken to perform each activity correctly. Have each student draft and maintain a chart to record improvements in performance.

Activity	Time (in seconds)									
	1	2	3	4	5	6	7	8	9	10
Setting Margins										
Inserting Paper: 8½" x 11"										

- Use a checklist to evaluate, on an ongoing basis, student performance in manipulating the various parts of a keyboard.

Manipulation Date	Competency Level									
Uses function keys										
Handles paper properly										
Uses shift keys										
Uses edit keys										
Sets margins										
Uses return keys										
Key: E-Excellent; V.G.-Very Good; G-Good; F-Fair; P-Poor										

- The skills developed in this activity may be useful in occupations other than those usually associated with office work.
 - Brainstorm with classmates to identify those other occupations
 - Discuss how the knowledge gained from this activity relates to other non-office occupations.

Community Partnerships

- Invite the school secretary and keyboard operators from the community to discuss and demonstrate the importance of being organized and thoroughly familiar with keyboarding machines.

THEME: All About Business
LEARNING ACTIVITY: Keyboarding: The Alphabetical Keyboard
GRADE (suggested): 8
TIME (suggested): 25-30 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- recognize the layout of the alphabetical keyboard
- understand the basic principles of alphabetical keyboarding.

Skills:

- demonstrate basic touch typing/keyboarding of the alphabetical keyboard
- follow correct keyboarding rules and procedures
- demonstrate correct work station management and keyboard posture.

Attitudes:

- appreciate the value of producing a quality document
- appreciate the efficiency of using a keyboard to produce a written communication.

RESOURCES

Class Resources

A class set of work stations, typewriters or microcomputers, typist chairs and copy stands
Stationery

Student Resources

The introductory pages of most keyboarding and word processing textbooks may be used to introduce and reinforce the following concepts, skills and attitudes:

- Procedures
- Rules
- Alphabetic keyboard finger reaches
- Speed and Accuracy

Teacher Resources

Teacher's Manual for Personal Applications in Typewriting Farmer, G.M. Agincourt, Ontario: Gage Educational Publishing Limited, 1979

Computer Courseware

Superkey Richmond Hill, Ontario: Bytes of Learning, 1985.

Micro Computer Keyboarding Jackson, T. et al. Agincourt, Ontario: Southwestern Publishing Company, c/o Gage Publishing, 1983.

TEACHER BACKGROUND INFORMATION

This learning activity is intended to make students aware of the basic rules and procedures of using the alphabetical keyboard. Students wishing to gain further adeptness in keyboarding while in Grade 8 may consider enrolling in the junior high typewriting course.

Although this learning activity has been specifically developed for the typewriter, with slight modifications it could be used to introduce keyboarding on the microcomputer. The selection of equipment will be based on availability and access to local resources and facilities.

Apply and reinforce behaviours from the learning activity "Preparing to Keyboard" including:

- organizing the workstation
- correct posture at the keyboard
- using the manipulative parts of the keyboard.

INTRODUCING NEW KEYS

- Explain that the alphabetical keyboard contains all the letters of the alphabet. Ask the students to look at the keyboard of the typewriter and identify the location of keys A-Z. Illustrate the alphabetic keyboard with a transparency master of the keyboard.
- Direct the students to locate each key on the keyboard as it is introduced.
- Demonstrate the reach stroke.
- Have the students place their hands in home row position and watch the controlling finger move to a key and back to guide key position a few times, without striking the key, to learn the direction, distance, and "feel".
- Have the students type a tryout drill three or four times for the keys while vocalizing the letters with the teacher.
- Encourage students to reference Resource 1: "Keyboard Chart" when they are in doubt about the location of a letter, rather than forming the hard-to-break habit of looking at the keyboard.

TOUCH TYPING/KEYBOARDING

Use the 3D strategy:

- Define the concept "touch-typing/keyboarding".
- Describe how touch typists/keyboarders operate.
- Demonstrate the technique of touch-typing/keyboarding.

Touch-typing/keyboarding allows the operator to efficiently produce copy relying on feel rather than eyesight. The touch-typist/keyboarder does not have to look at the keys in order to locate letters of the alphabet.

Learning the location of each key on the keyboard is the first step in learning how to touch-type/keyboard.

SPEED AND ACCURACY AWARENESS

The emphasis in this learning activity should be on accuracy rather than on speed. Timed writings, not exceeding 12, 15 or 30 seconds, are recommended in this Grade 8 learning activity. Since the speed attained on short periods is not a realistic measure of actual typing skill, timed writings should be administered sparingly.

A variety of directed and purposeful drills, as found in the teacher and student resources, should be administered on a regular basis. Explain the purpose of each drill so that students know what they are aiming for and why. The text usually indicates the objective; e.g., review of reaches introduced in the last lesson, complete alphabetic review to be followed by drill on letters posing difficulty, correct shifting, use of carriage return or margin release, eyes on copy, etc.

Follow the drill with an assessment to enable students to evaluate their progress and take steps to correct or improve specific techniques. This may be done by counting errors, calculating speed rate, or a show of hands in response to evaluation of individual performance (eyes on copy, wrists level, good posture, etc.).

Encourage students to concentrate on the development of good technique by pacing class drills. This can be done by teacher pacing, by typing in time to slow music, by use of a metronome, and so on.

Activities to develop continuity of the alphabetic keyboard might include:

- alphabetic sentences to review all of the alphabetic keys
- speed escalator sentences to encourage students to develop higher keyboarding speeds
- speed escalator paragraphs of graduated lengths to assist students to build and to sustain speed
- error-elimination sentences to discriminate between key locations and to practise making difficult reaches.

STUDENT ACTIVITIES

1. Use the various drills indicated in the teacher and student resources to introduce touch-keyboarding of the letters of the alphabet.

2. Use games to build keyboarding competency and speed; for example,

Typewriting Tag – This game encourages students to develop touch-typing. The teacher "tags" a student caught looking at his fingers. The student, in turn, comes to the front of the class and "tags" someone else. The reason for the "tag" can be changed and varied to suit the technique to be emphasized.

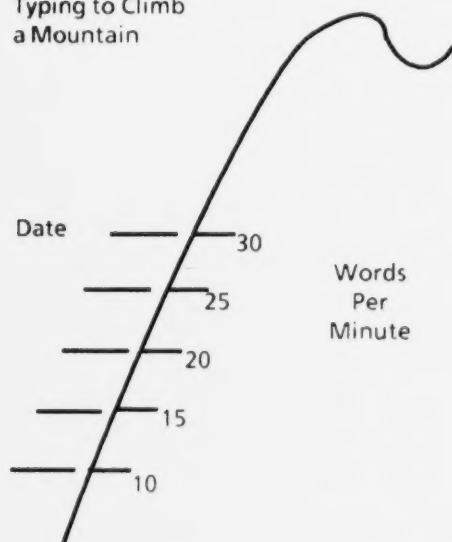
Relays – This game uses a series of sentences or paragraphs. The first student in a row (a relay team) types the first sentence and passes the sheet to student two who types the next sentence and so on down the row. The team that finishes first, with the fewest errors, and/or the greatest number of sentences/paragraphs, is the winner.

Tournament – Students, in pairs, compete against other pairs, with the results kept on a standard tournament chart. The contest can be on any length of drill, scored for whatever technique or accomplishment needs to be emphasized.

These games may be used to stimulate student interest and encourage higher levels of performance. The games can be used for similar objectives between classes in a single school.

3. Have students design and keep a graph or chart to report their progress. Instead of the usual bar or line graph, encourage students to be more creative by using different images such as "a mountain to climb", "team statistics" or "a trip to the moon".

Typing to Climb
a Mountain



Team	Words Per Minute									
Date										
The Dinosaurs										
Keyboard Kickers										
Fast Fingers										

4. Brainstorm:

"In what ways can the ability to keyboard help students in other courses? Which courses?"

"Name the careers and full-time, part-time jobs in which the ability to keyboard would be useful."

Community Partnerships

5. Arrange a tour of an office machines company to note the various styles of typewriters and the differences between keyboards. If possible, note keyboards with special characters which are needed for typing a foreign language.

RULES OF PUNCTUATION AND CAPITALIZATION

Use charts, transparencies, and integrated lesson planning with the language arts teacher to explain the rules of punctuation and capitalization as they apply to a keyboarded production:

- when to use capital letters
- the spacing required after a period, comma, question mark, abbreviation.

STUDENT ACTIVITIES

1. Encourage students to bring to class copies of typed business letters they or their families have received. Analyze the letters for the application of correct punctuation and capitalization rules.

Similar analysis may be used with local journal and magazine articles.

2. Have students work in groups to develop a mnemonic or rhyme that helps them to remember rules of punctuation and capitalization. Share and exchange mnemonics and rhymes with other groups in the class.
3. Discuss: "Why is it important to ensure correct use of punctuation and capitalization in a business letter?"

"Is it as important to have correct punctuation and capitalization in a letter to a friend as it is in a business letter? Why or why not?"

COMPOSITION

Typewriting should be taught as a tool for writing, not just copying. As soon as students have mastered the location of the keys and developed the basic technique of operating the machine, introduce exercises to develop the ability to think at the typewriter and to use it as a composing instrument. Words, phrases, sentences and paragraphs taken from other courses make meaningful keyboarding exercises and help to reinforce the learnings obtained in other courses. Encourage this integration and reinforcement of learnings through a variety of composition activities and through cooperative unit and lesson planning with teachers in other subject areas.

STUDENT ACTIVITIES

1. Use simple starter exercises to reinforce previous learnings and to provide opportunities for students to demonstrate their knowledge;
e.g.,
 - fill in letters missing from words in copy
(e.g., The s_n shines br_ghtly e_ch d_y.)
 - unscramble words that are out of position (e.g., Roy steps walked up three.)
 - supply missing words (e.g., Our truck _____ damaged _____ slightly.)

2. Provide thought starters:

- a. The teacher calls a word and the class types
 - an antonym, or synonym
 - a closely linked word (e.g., Romeo - Juliet)
 - a word that rhymes (e.g., drop - prop).
- b. The teacher asks a question that requires the typing of a one-word answer.
- c. Show a picture or cartoon - then follow with some leading questions to be answered in typing (e.g., name all articles seen in the picture, describe what the man is doing, etc.).
- d. Use the overhead or opaque projector to flash a thought starter for the class. Follow with questions to answer, a sentence stem, or directions to do something.

e.g.,

THOUGHT STARTER	ACTIVITY/DIRECTION
Holidays	What was the best holiday you ever had?
Money	Having a part-time job means
Safety	List the procedures that must be followed when the fire bell rings.

3. Keyboarding skills may be used in occupations other than those usually associated with office work.
 - (a) Brainstorm with classmates to identify these other occupations.
 - (b) Discuss how keyboarding relates to these other occupations.

EVALUATION

Students learn at different rates and in different ways. When evaluating students' keyboarding ability, many factors should be considered including:

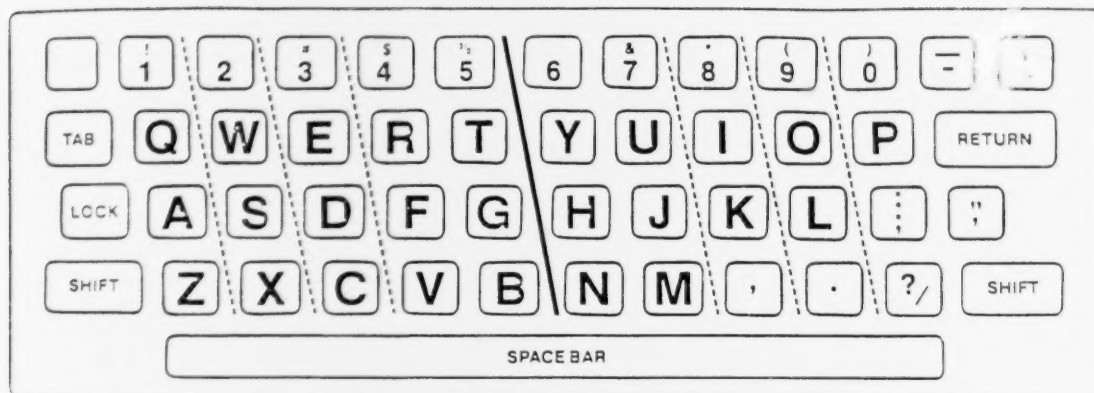
- gross motor skill
- fine motor skill
- previous keyboarding experience.

The following evaluation chart may be used as a guide when evaluating touch typing/keyboarding performance.

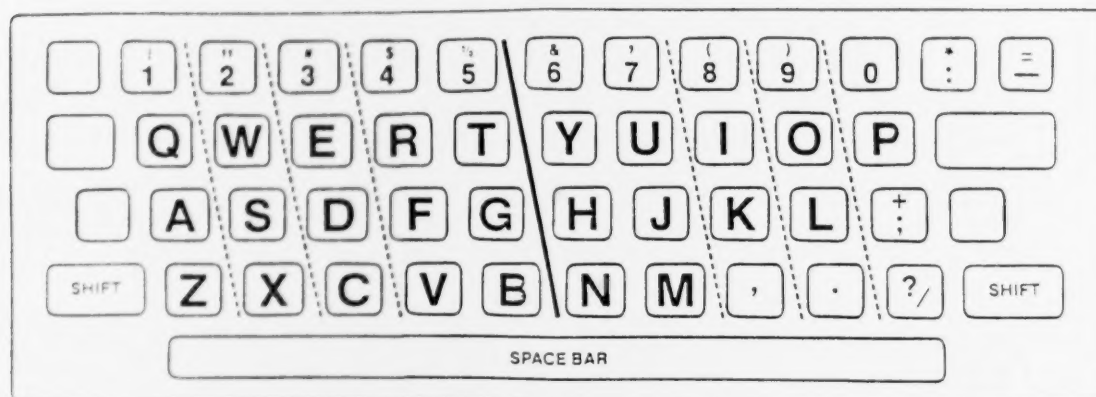
TOUCH TYPING/KEYBOARDING PERFORMANCE	PERCENTAGE
Does not use correct fingers; looks to find keys.	0/100
Uses correct fingers; however, looks to find keys and has poor rhythm.	20/100
Uses correct fingers; looks infrequently at the alphabet keys. Looks at typed copy too often.	40/100
Uses correct fingering; does not look for alphabet; does not look at typed copy too often; looks often for shift key, tab, and return keys.	60/100
Uses correct fingering; does not look for alphabetic keys; looks occasionally for function keys.	80/100
Demonstrates complete mastery of the alphabetic keyboard.	100/100

KEYBOARDS

TYPEWRITER



MICROCOMPUTER



THEME: All About Business
LEARNING ACTIVITY: Telephone Directories: Who's Who and What's What?
GRADE (suggested): 8
TIME (suggested): 8-10 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the purpose of telephone directories
- recognize essential services listings in a telephone directory
- understand how to locate agencies, businesses and individuals by using a telephone directory.

Skills:

- demonstrate the ability to locate and record telephone numbers and addresses in a telephone directory
- use the white, yellow and purple pages to identify individuals, government agencies and businesses

Attitudes:

- appreciate the value of local, regional and national telephone directory systems
- respect the rights of others when using the telephone system.

RESOURCES

Copies of local and regional telephone directories:

- white pages
- yellow pages
- purple pages.

(Most companies discard directories in March of each year. These outdated directories provide an ideal basis for providing instruction in this activity.)

TEACHER BACKGROUND INFORMATION

In Alberta "white page" and "yellow page" telephone directories are published by two major telecommunication companies:

- Alberta Government Telephones (AGT)
- Edmonton Telephones (ET)

The purple pages are published by Purple Pages Publications Inc. (Edmonton and Calgary offices)

A.G.T. publishes a separate directory for each of the following areas in Alberta:

- | | |
|--|------------------------------|
| • Airdrie | • Drumheller, Hanna and Area |
| • Banff and Area | • Fort McMurray |
| • Barrhead, Morinville, Slave Lake and Area | • Grande Prairie |
| • Bonnyville | • High River |
| • Brooks and Area | • Lethbridge |
| • Calgary | • Medicine Hat |
| • Camrose, Wetaskiwin and Area | • Red Deer |
| • Crowsnest Pass | |
| • Drayton Valley, Edson, Hinton, Jasper and Area | |

With the exception of the Calgary directory, all other A.G.T. directories combine the "white pages" and the "yellow pages" into a single book for each telephone area. Because Calgary has a much larger population and more businesses, Calgary has a separate "white page" directory and a separate "yellow pages" directory.

Edmonton Telephones likewise publishes a "white page" directory and a separate "yellow page" directory. Both directories contain telephone listings for individuals, agencies and businesses in the Edmonton area, including:

- | | |
|---------------------|---------------|
| ● Alberta Beach | ● Leduc |
| ● Bon Accord | ● Millet |
| ● Calmar | ● Morinville |
| ● Devon | ● New Sarepta |
| ● Fort Saskatchewan | ● Onoway |
| ● Gibbons | ● Redwater |
| ● Keephills | ● St. Michael |
| ● Stony Plain | |

In addition to the "white pages" and the "yellow pages", other directories are published to serve various community needs.

STUDENT ACTIVITIES

1. Obtain a copy of the local telephone directory or directories and respond to the following questions.
 - a. What area(s) does it cover?
 - b. Are the white and yellow pages combined into one volume or are they separate?
 - c. How does the information found in the white pages differ from that found in the yellow pages?
2. Discuss: "Why do AGT and ET publish both the white pages and the yellow pages?"

Community Partnerships

3. Visit the school office, the local post office or library, and identify other directories that include information about the area in which you live. Record the names of these directories and briefly describe how these directories differ from those published by AGT and ET.
4. Invite a representative from AGT, ET or other directory publisher to discuss how they compile their directory, how the information is obtained, how frequently the information is updated, and why there are directories other than those published by AGT and ET.

USING THE TELEPHONE DIRECTORY: THE WHITE PAGES

The introductory part of the white pages of telephone directories contains a vast amount of information, including:

- emergency call numbers
- details of customer services available from the telephone company
- rules and regulations regarding telephone services
- instructions on how to use the telephone book
- how and where to pay telephone bills
- how to make long-distance calls
- types and costs of long-distance calls
- basic first-aid information
- what to do in case of a severe storm or other emergencies
- telephone and address listings of people in the area served by the directory

STUDENT ACTIVITIES

1. Scan a copy of the white pages directory. What information is provided in addition to individual names, telephone numbers and addresses?
2. Using the introductory pages of the "white pages" directory, indicate the number to call in the following situations:

(a) If you need to find a number that isn't in your directory

(b) If you need immediate emergency help

(c) If your neighbour's house is on fire

(d) If you want to report a strange buzzing sound on your telephone

(e) If you want a telephone number for a relative in another city in Alberta

(f) If you need an ambulance for an injured person

(g) If you need to telephone the police

(h) If you need to know what time it is

(i) If you have a flooded basement

(j) If you find an injured animal

2. Identify the area codes for:

Alberta	_____	Quebec	_____
British Columbia	_____	Prince Edward Island	_____
Saskatchewan	_____	Newfoundland	_____
Manitoba	_____	Yukon	_____
Ontario	_____	Northwest Territories	_____

When is an area code used?

3. What should you do if you receive a threatening, obscene or harassing telephone call? (Discuss the advice given in the telephone directory.)
4. What are the different types of long-distance calls? Discuss how each type of call differs from the others.

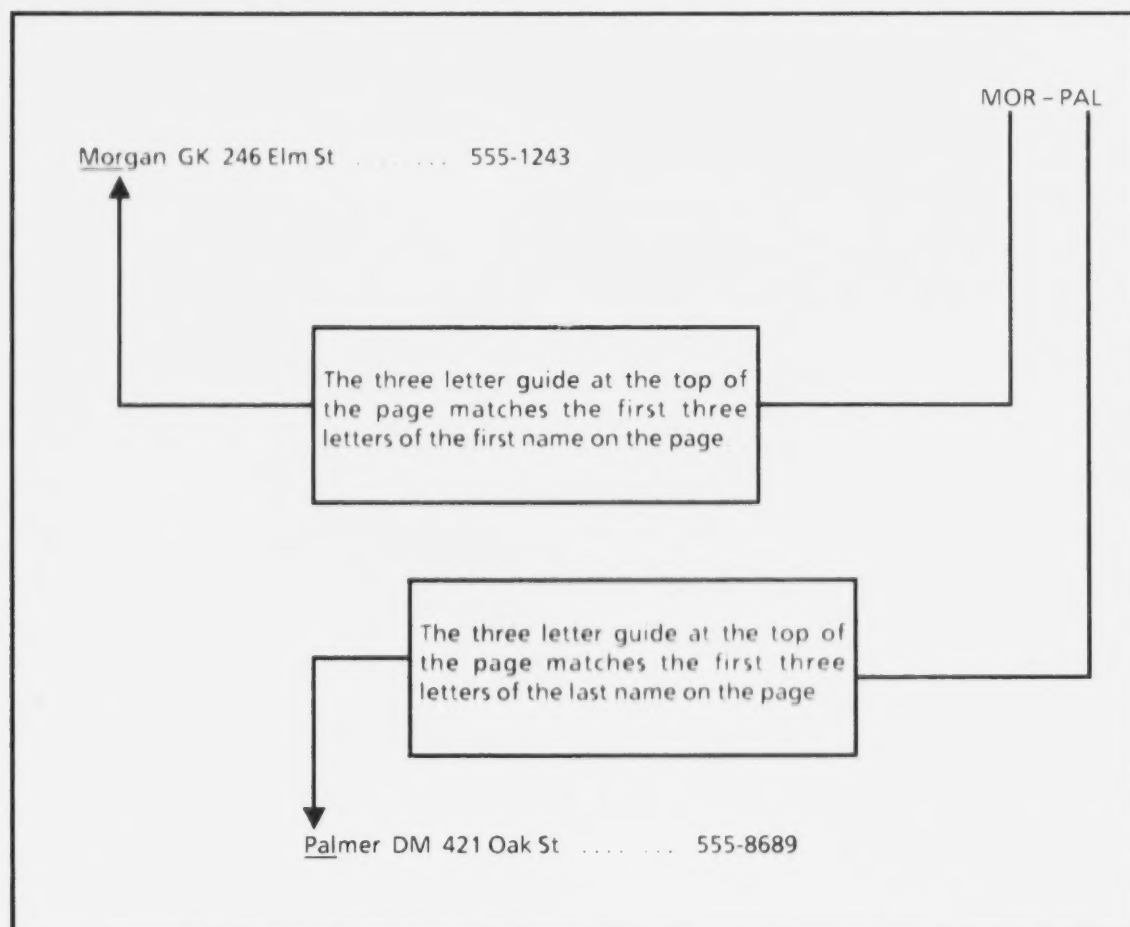
USING THE TELEPHONE DIRECTORY: GUIDE LETTERS

The directory of names, addresses and telephone numbers forms the major portion of the "white pages".

In a manner similar to that of a dictionary, the telephone directory uses guide letters at the top of each page. In order to increase speed in locating names and numbers, students should learn how to use the guide letters.

- FLIP quickly through the corners of the pages until you reach the letter section you need.
- TURN the pages quickly to locate the correct guide letters.
- SCAN the page for the correct name.
- EXAMINE the names to locate the correct person or business.
- CHECK the address and the initials to be certain that you have the right number.

The diagram below shows how the GUIDE LETTERS are used:



STUDENT ACTIVITIES

1. Use the white pages for your area to find the telephone numbers of the people or agencies indicated:

NAME	TELEPHONE NUMBER
Your school:	
Your doctor:	
Your dentist:	
Your best friend:	
The grocery store that you use:	
A service station near your home:	
Municipal government office:	
A friend of your family in town:	
A favourite restaurant:	
The police station closest to your home:	

2. What type of filing system is used in the white pages?
3. Brainstorm: "Why are some names, addresses and telephone numbers not to be found in the white pages?"

Community Partnerships

4. Use Resource 1: "Fast Find" to encourage students to become adept in locating personal names and numbers in the telephone directory.

4. How can an individual or family have their name, address and telephone number removed from the white pages? Consult with a representative of the telephone company and discuss your findings with the class.

USING THE TELEPHONE DIRECTORY – THE YELLOW PAGES

The yellow pages contain the names, addresses and telephone numbers of businesses. Each business is listed alphabetically under the type of business and each type of business is filed alphabetically.

A number of businesses listed in the yellow pages have display advertisements -- an enlarged section which tells readers more about the business operation of an individual company; e.g., its products, services, multiple locations.

STUDENT ACTIVITIES

1. What does it mean "to file alphabetically"?
2. Use the local yellow pages to complete the following information chart.

SERVICE REQUIRED	THE NAME OF THE COMPANY THAT CAN PROVIDE THE SERVICE	THE COMPANY'S TELEPHONE NUMBER
Your dog is sick and you need an animal doctor to help it.		
Your washing machine just broke down and you need a repair person to fix it.		
Your motorcycle won't run and you don't know how to fix it. You need help.		
Your mother wants you to buy her a Saskatoon bush for her birthday.		
You want to take your date out for Chinese food. Where do you go?		
You just broke your father's favourite fishing rod. Where do you buy a new one?		
4000 mice moved into your house last night. Where do you get help?		
You want to take driving lessons. Whom do you contact?		

3. Look at the display advertisements in the yellow pages and discuss the following topics in class:
 - a. Why do some businesses purchase display advertisements?
 - b. Which businesses appear to have the largest number of display advertisements? Why?
 - c. Pretend you have your own business. Design a display advertisement that would increase the volume of business. Present your design to the class and explain:
 - why you selected the particular business
 - your display advertisement and its special features
 - how you believe other people will react to the advertisement.
4. What is meant by the following slogan used for the yellow pages: "Let your fingers do the walking through the yellow pages"?
5. The ability to obtain information accurately from a telephone directory is a skill that can be used in many work and personal use situations.

Brainstorm: "In what ways can the ability to use directories help in each of the following occupational clusters:

- Agribusiness?
- Construction and Fabrication?
- Creative Arts?
- Natural Resources?
- Personal and Public Services?
- Tourism and Hospitality?
- Transportation?"

"FAST-FIND"
A TELEPHONE DIRECTORY GAME

WHAT YOU WILL NEED TO PLAY THE GAME:

- Two identical telephone directories.
- A friend with whom to play the game.
- A watch with a second hand.
- A score card such as the one on the next page.

RULES OF THE GAME

1. Your friend gives you the name and initials of a person in his telephone book.
2. As soon as your friend has given you the name, your friend will begin timing you in seconds.
3. As soon as you hear the name, you look up the number of that person in your directory and call out the number.
4. If you have the correct number, your friend stops timing you and records the time that it took you to find the number.
5. Your friend repeats the procedure four more times. Your final score is the total of the five times recorded.
6. After you have found five names, your friend takes five turns and you call out names and record your friend's times on the score card.
7. The person with the LOWEST total score for five names, wins.

	1	2	3	4	GAME		7	8	9	10
			RECORD TIMES IN SECONDS							
FIRST										
SECOND										
THIRD										
FOURTH										
FIFTH										
TOTAL										

	1	2	3	4	GAME		7	8	9	10
			RECORD TIMES IN SECONDS							
FIRST										
SECOND										
THIRD										
FOURTH										
FIFTH										
TOTAL										

	1	2	3	4	GAME		7	8	9	10
			RECORD TIMES IN SECONDS							
FIRST										
SECOND										
THIRD										
FOURTH										
FIFTH										
TOTAL										

You can also play this game against yourself. Simply keep trying to find five numbers in fewer and fewer total seconds. Beat your own best time!

THEME: All About Business
LEARNING ACTIVITY: The Telephone: Making the Connection
GRADE (Suggested): 8
TIME (Suggested): 10-15 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the importance of the telephone as a means of communication
- recognize the role that the telephone plays in business and industry.

Skills:

- demonstrate ability to locate telephone numbers using a telephone directory
- demonstrate ability to handle a business telephone in a businesslike manner
- demonstrate ability to accept and correctly record messages.

Attitudes:

- value the telephone as an important tool of communication
- appreciate that the business telephone is used primarily for business purposes.

RESOURCES

Booklets, pamphlets and other assorted instructional materials are commonly available through the local offices of Alberta Government Telephones.

Arrangements may also be made to have representatives of telephone companies visit the school or be available on-site for field experience activities.

A practice telephone system may be set up in the classroom or between classrooms. A local telephone company may be willing to loan such a system, or students in the Technical/Occupational component of the I.O.P. Practical Arts may be able to provide the practice system. (Theme: "Techniques with Technology"; Learning Activity: "The Telephone: Getting on Line")

TEACHER BACKGROUND INFORMATION

The Importance of the Telephone

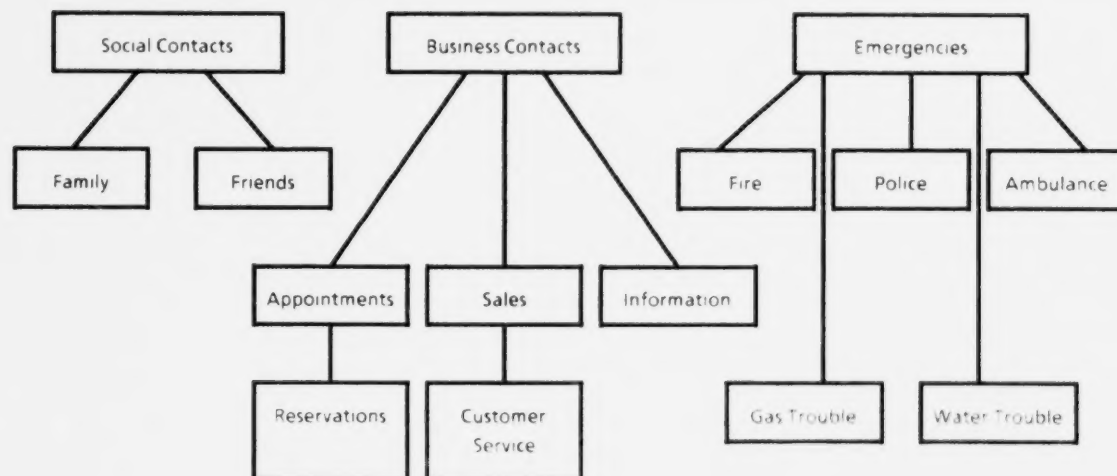
The telephone is one of the most important tools of communication in the home, the school and the workplace. People in business need to communicate regularly with customers, suppliers, and other businesses.

Having access to a telephone is now considered so important that many people install a telephone in their cars and some carry a mobile phone with them at all times.

Car phones and mobile phones are relatively expensive; therefore, many people rent "beepers" -- a communication device that tells the user that someone is trying to make contact by telephone. At the sound of the "beep", the user goes to the nearest telephone to make contact with the caller.

STUDENT ACTIVITIES

1. Discuss: "Is the telephone considered to be a necessity in our society? Why?"
2. Brainstorm the different uses of the telephone and categorize the responses using a web.



3. Have students keep a record of the telephone calls they or members of their family make and receive during a given week. Have them categorize the calls and record the amount of time spent on each call on the following chart:

Period From: _____ To: _____					
Incoming Calls		Time	Outgoing Calls		Time
Social	Business		Social	Business	
		Total:			Total:
Total incoming calls _____ Total outgoing calls _____ Total time spent on the telephone _____					

Community Partnerships

4. Invite the school receptionist/secretary and/or a receptionist/secretary from a local business to discuss the importance of the telephone to the business community.
5. Establish field experiences for students to job shadow telephone operators in a variety of business and office situations.
6. Invite a representative from a telephone company to bring samples of cellular phones and "beeper" and digital communication devices and to discuss the reasons for the increasing use of car phones, mobile phones and paging devices.
7. There are many types of telephones in today's business world. Expose students to as many types of telephone systems as possible. Obtain posters or drawings of different types of telephone systems and use them to decorate the classroom. Teachers and students, or an art class from other I.O.P. Practical Arts courses, may be requested to produce posters.
8. Develop community partnership opportunities that permit students to observe and/or shadow telephone operators in a variety of business situations:
 - office
 - beauty salon
 - restaurant
 - main switchboard
 - police station
 - library

USING THE BUSINESS TELEPHONE

The technology to enable the telephone caller and the person receiving the call to see one another is still under development. When video-telephones become available, both the caller and the receiver will probably be concerned with both what they say and how they look to one another.

At this time, however, it is important that people who use the telephone for business purposes develop PHONOGENIC SKILLS -- the ability to communicate pleasantly and positively with others over the telephone.

Basic phonogenic skills include:

- placing the telephone handset directly in line with the lips and about the width of two fingers from the mouthpiece
- speaking in a clear, evenly paced voice. Never shout into the mouthpiece
- being polite and considerate to the other person even though the other person may not always demonstrate phonogenic skills
- the ability to handle incoming and outgoing business calls correctly

ANSWERING INCOMING CALLS

- a. Answer call (on first ring if possible).
- b. Speak distinctly.

- c. * Greet caller using a salutation "Good morning", "Good afternoon" or "Good evening".
- d. Identify yourself by using the company name, department, and your name ("Smith and Thompson Company, Claims Department, Mrs. Jones speaking").
- e. If the requested party is available ask caller to wait ("One moment please"), while you transfer the call.
- f. If the line is busy, say to the caller, "I'm sorry, that line is busy, do you wish to hold?"
- g. If the party being called is not available, the following conversation will provide the caller with the impression that the telephone operator is efficient and the business is well organized

PHONE RINGS:

YOU ANSWER: "Good morning, the Brown Rental Company, Joan speaking."

THE CALLER: "Good morning, is Mr. Brown available?"

YOU REPLY: "Mr. Brown is in a meeting at the moment. Please may I ask who's calling and take a message for him?"

THE CALLER: "Thank you, this is Mr. Smith calling. Will you tell Mr. Brown that I would like to talk to him about renting the room? I will be available this afternoon until three o'clock. My phone number is 555-1234."

YOU REPLY: "Thank you Mr. Smith. I'll give Mr. Brown your message as soon as he returns."

THE CALLER: "Thank you, good-bye."

YOU REPLY: "Good-bye Mr. Smith."

*This practice of greeting a caller is considered by some businesses to be a time-waster. Perhaps a very pleasant speaking voice says the same thing without taking the time to put it into words.

TAKING TELEPHONE MESSAGES

When taking a message over the telephone:

- a. Try to write quickly and clearly
- b. If you are not able to write down all of the information, ask the caller to repeat the missed information.
- c. If necessary, write the telephone message over again after the caller has hung up. Be careful to spell correctly and to give full and accurate information in the note. Check the telephone number against your first copy.
- d. Be sure that the person called gets the telephone messages immediately when he or she is available.

STUDENT ACTIVITY

1. Design a telephone form which would be appropriate for taking messages for family members.

THIS IS IMPORTANT, ESPECIALLY IF THERE ARE MANY TELEPHONE MESSAGES. IT TELLS THE PARTY CALLED THE ORDER IN WHICH THE CALLS CAME IN.

THIS MEANS THAT THE CALLER LEFT HIS OR HER COMPANY'S NAME.

IF THE CALL IS MADE FROM ANOTHER CITY, RECORD THE AREA CODE AS WELL.

ENSURE THAT THE MESSAGE IS NEAT AND COMPLETE.

THE PERSON RECEIVING THE CALL SHOULD SIGN/INITIAL IN CASE MORE INFORMATION IS REQUIRED ABOUT THE CALL.

TIME: _____ DATE: _____

MESSAGE FOR: _____

CALLER: _____

OF: _____

WHOSE PHONE NUMBER IS: _____

LEFT THIS MESSAGE FOR YOU

THE MESSAGE WAS TAKEN BY: _____

2. Arrangements may be made with the school principal and the school secretary to allow students, on a rotational basis, to gain first-hand experience answering incoming calls to the school. The following set of procedures can be used as a guide to correct telephone answering behaviour:

ANSWERING THE SCHOOL TELEPHONE

When you are responsible for answering the school telephone, here are a few things to remember:

- a. Answer on the first ring if possible.
- b. Say: " Good morning, Name of School, your name, a student speaking."
- c. Listen carefully to what the other person is saying. Keep a note pad at hand to write the information on and then respond to the caller.

The caller may say something like this:

"Is the principal in?"

- d. If the principal is taking calls, you will say something like:

"Yes, may I tell him who's calling, please?"

When the caller tells you the name, write it down, then say:

"Thank you. I'll transfer your call."

You then inform the principal of the caller's name and transfer the call.

- e. If your telephone system requires you to hang up your phone when the principal takes the call, do so as soon as you know that the call has been taken.
- f. If the principal is not available to accept an incoming call, then tell the caller:

"I'm sorry, Mrs. Smith isn't available to take your call at the moment. May I have your name and number and she will call you back as soon as she is free."

NOTE: Substitute real names for the pretend ones above.

PLACING OUTGOING CALLS

A telephone operator or receptionist may be asked by an employer or a customer to make a business call on their behalf. The following practices are considered phonogenic:

- a. If you are using a telephone with more than one line, observe the indicator lights. Be certain the line is free before you pick up the handset.
- b. Pick up the handset and listen for a dial tone before dialing. If you accidentally pick up a line that is already in use, say "excuse me" and hang up immediately.
- c. When the person being called answers the telephone, identify yourself - "Good morning, Ms. Smith, this is Michael Brown of the XYZ Company."
- d. State the purpose of the call clearly and concisely; e.g., "Mr. Lock would like an appointment to see Ms. Marion today. Is this possible?"
- e. If the call requires that a message be taken, use a message form and record the information clearly and accurately.
- f. Be aware that in business, time is money. When the business of the call is completed, end the call.

PUTTING A CALLER ON HOLD

If there are several telephone lines coming into a business telephone, many calls may come in at the same time. Since only one call can be handled at a time, it will be necessary to ask other callers to wait until the first call has been answered. To do this, waiting callers must be put on "HOLD".

Different telephone systems have different ways of actually doing this. Encourage students to learn how to work different systems by practising on the school telephone system after school hours. Practise receiving incoming calls and punching the correct buttons in the correct order.

The following procedure is commonly followed when having to put a caller on hold:

1. You are speaking with CALLER "A" when the second line rings.
You say to CALLER "A":
"I have another call coming in. Would you please hold for a moment and I'll get right back to you?"
2. Answer the second call just as if it were the only call being handled, and say ...
"I have a call on another line. Would you mind holding for a moment, please, and I will get right back to you?"

Allow time for CALLER "B" to assent, then, when you have placed the second caller on HOLD, return to CALLER "A".
3. Complete your call with CALLER "A". Return to CALLER "B" immediately after hanging up the first call.

4. NOBODY likes to be put on HOLD for very long!
If you cannot complete your business with CALLER "A" within 30 seconds, you should not place CALLER "B" on hold. Instead you should say to CALLER "B"

"ABC Company, Miss Jones speaking. I am transferring your call. Please remain on the line."

or, if you cannot transfer the call and a HOLD would last more than 30 seconds, say

"ABC Company, Miss Jones speaking. I'm on another line at the moment. May I have your name and telephone number and I will return your call in a few minutes, or would you prefer to hold?"

Sometimes, CALLER "B" may be willing to remain on hold for a longer time, if asked very politely to do so. If not, you must return the call as soon as you are able. This practice will save callers valuable business time and earn your company their respect. Remember to write down the name and telephone number!

5. If you transfer CALLER "B" to another department or receptionist, be certain that the call has been transferred and answered before returning to CALLER "A". Don't "lose people on the line".

SITUATIONAL RESPONSES

The following responses are frequently used in business telephone conversations.

SITUATION	RESPONSES
Called party busy - does not wish to be disturbed	M is not available this afternoon. May I ask him to call you tomorrow?
Called party with a client	M is with a client. May I ask him to call when he is free?
Called party at a meeting until 3 p.m.	M is attending a meeting. May I ask him to call you when he is available?
Called party talking on another telephone	M is talking on another telephone. May I ask him to call you?
Progress Report	M is still busy. May I take a message or may I help you?
Called party out for coffee	I expect M in about 20 minutes. May I ask him to call you?
Called party out for lunch	I expect M about 2:00 p.m. May I ask him to call you?
Called party away from desk for a few minutes	M is not in the office just now. May I take a message?
Called party out of town	M is out of town until (date). Could someone else help you?
Called party not in yet	I do not expect M until about 10:00 a.m. May I ask him to call you?
Called party left office for the afternoon	M will not be back this afternoon. Would you like him to call you tomorrow?

SITUATION	RESPONSES
Called party available to certain individuals only	I'll see if he is free. May I tell him who is calling please? Yes, he is free, I'll connect you Mr. or I'm sorry M M is at a meeting just now. Could someone else help you?
Called party ill	M is not in the office today. May I ask him to call you?
Called party unable to take call immediately	M will be with you in a moment. Do you mind waiting or should I have him call you?
Calling party reached wrong extension	Our sales department handles that type of information. May I transfer you?
Calling someone to the telephone	If you will excuse me for a moment I'll see if M is in the office. Yes, he is here. excuse me while I call him.
Terminating a telephone call	Thank you for calling. Good bye.

STUDENT ACTIVITIES

1. Have students role play different scenarios. Provide each student the opportunity to act as the caller and the receiver. Have them:
 - take messages (see Resource 1: "Taking Telephone Messages")
 - handle difficult callers
 - make, change, and break appointments.

(To create a more real-life scenario, use a practice telephone system or simply use two handsets to help students overcome the difficulty of talking business face-to-face.)

2. Have students initiate contacts with potential community partners by telephone. Keyboarded or handwritten follow-up letters may then be written.

3. Have students work in pairs and present a telephone scenario. Have the rest of the class provide feedback as to the attitude of both the caller and the receiver. Groups may role play:
 - the impatient caller
 - the irritable receiver
 - the angry, unsatisfied customer
 - an emergency call to the fire, police or ambulance authority
 - putting callers on hold.
4. The ability to use a business telephone correctly can be used in occupations other than those usually associated with office work. Brainstorm to identify the non-office occupations in which the ability to use a business telephone correctly might be a saleable skill.

TELEPHONE USAGE EVALUATION

Pleasant business telephone behaviour is good for business. However, like most behaviours, phonogenic skills are learned through repeated usage. Provide students with opportunities to:

- answer the classroom telephone
- initiate community partnership contacts
- handle the school telephone
- observe telephone operations in a variety of business contexts.

Evaluate students on their verbal as well as non-verbal behaviour. The following factors may be included when evaluating phonogenic abilities:

Verbal communication

- clarity (Is each word understandable?)
- tone (Is there a "smile" in the voice?)
- volume (Can the other party hear the communication? Is he or she deafened by the voice?)
- communication (Was the other party told who was speaking?)

Non-verbal communication

- pleasantness (Does the speaker seem pleased to be involved in the communication?)
- eagerness (Is the speaker bored with the job?)
- message taking (Are messages correct?)
- handling multiple calls (Is the proper procedure followed when operating a multi-line telephone?)

TAKING TELEPHONE MESSAGES

TIME: _____ DATE: _____ MESSAGE FOR: _____ CALLER: _____ OF: _____ WHOSE PHONE NUMBER IS: _____ <u>LEFT THIS MESSAGE FOR YOU</u> _____ _____ _____ _____ _____ _____ THE MESSAGE WAS TAKEN BY: _____	TIME: _____ DATE: _____ MESSAGE FOR: _____ CALLER: _____ OF: _____ WHOSE PHONE NUMBER IS: _____ <u>LEFT THIS MESSAGE FOR YOU</u> _____ _____ _____ _____ _____ _____ THE MESSAGE WAS TAKEN BY: _____
TIME: _____ DATE: _____ MESSAGE FOR: _____ CALLER: _____ OF: _____ WHOSE PHONE NUMBER IS: _____ <u>LEFT THIS MESSAGE FOR YOU</u> _____ _____ _____ _____ _____ _____ THE MESSAGE WAS TAKEN BY: _____	TIME: _____ DATE: _____ MESSAGE FOR: _____ CALLER: _____ OF: _____ WHOSE PHONE NUMBER IS: _____ <u>LEFT THIS MESSAGE FOR YOU</u> _____ _____ _____ _____ _____ _____ THE MESSAGE WAS TAKEN BY: _____

THEME: All About Business
LEARNING ACTIVITY: Keyboarding: Building Skills
GRADE (suggested): 9
TIME (suggested): 20-25 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the use of the manipulative parts of the typewriter keyboard
- provide examples of typewriting/keyboarding rules and procedures
- recognize the layout of the numeric keyboard.

Skills:

- demonstrate the correct use of the manipulative parts of a typewriter/keyboard
- demonstrate proper procedures for tabulating, aligning and error correction
- demonstrate improved touch-typing/keyboarding techniques, including speed, accuracy, and composition using the alphabetic and numeric keyboards.

Attitudes:

- display appreciation for the use of the typewriter/keyboard as a means of communication
- appreciate the value of producing a quality keyboarded document.

RESOURCES

Class Resources

A class set of work stations, typewriters or word processing keyboards, typist chairs and copy stands.

Stationery

Student Resources

Many introductory keyboarding and word processing textbooks may be used to introduce, review and apply the following concepts, skills and attitudes:

- Alphabetic keyboard
- Centering
- Composition
- Error correction
- Numeric keyboard
- Proofreading and Editing
- Technique improvement.

Teacher Resources

Teacher's Manual for Personal Applications in Typewriting Farmer, G.M. Agincourt, Ontario: Gage Educational Publishing Limited, 1979.

Computer Courseware

Typing Tutor II. Ainsworth, D.; and A. Baker, Bellevue, Washington: Microsoft Corporation, 1981.

Microcomputer Keyboarding. Crawford et al. Agincourt, Ontario: Southwestern Publishing Company c/o Gage Publishing, 1982.

TEACHER BACKGROUND INFORMATION

This learning activity is designed to build on the learnings acquired by students in the Grade 8, Business Education component of the I.O.P. Practical Arts. The purpose of the activity is, therefore, to develop further students' ability to use a typewriter or word processor keyboard correctly.

Although this learning activity has been specifically developed for the typewriter, with slight modifications it could be used to develop keyboarding skills on the microcomputer. The selection of equipment should be based on availability and access to local resources and facilities.

BASIC TYPEWRITING/KEYBOARDING TECHNIQUES

Begin this learning activity with a review of concepts, skills and attitudes taught in Grade 8 learning activities including:

- "Preparing to Keyboard"
- "Keyboarding: The Alphabetic Keyboard"

Emphasize the importance of daily practice to increase speed and accuracy. A variety of procedures can be used to do this, such as:

- spurt timings of 12-15 seconds on increasingly longer sentences
- one-minute stretch practices that involve the repetition of previous drills. In the repeat, students aim to type one more line of copy than was previously produced
- remedial practice that requires the keyboarder to type three correct copies for each word mistyped. (The keyboarder types three correct copies of the error adding the word immediately preceding and the word immediately following the original error.)
- timed writing of prepared text. (See Resource 1: "Keyboarding: Building Skills" and Resource 2: "Progress Record for Keyboarding")

STUDENT ACTIVITIES

1. A variety of games may be used to increase student's interest in developing their touch-typing/ keyboarding ability. These games include:
 - **Basketball, hockey or a team event.** Divide the class into teams and count scores for perfect copy during time "periods" or "quarters", etc
 - **"Pay-as-you-type".** The penalty for each error on a timed typing is retyping the error correctly three, five or ten times before continuing. Speed scores are thus reduced by inaccuracy

- **Obstacle race** Using a series of drill sentences, time the class for one minute as they type the first sentence repeatedly. After checking for accuracy, students whose work is error free may proceed to the next sentence, while the rest repeat the first one. After a series of such timings, determine who has typed the furthest.
- **Speed race** Occasionally it is desirable to have students push for speed regardless of accuracy. Have them compare individual improvements in rate. Timings should be short. A twelve second interval makes calculations easy - each stroke is equal to the rate in words per minute. The count of strokes typed on the scale will equal the rate.
- **Typing/Keyboarding Champ of the Week.** Display the name of a student meeting whatever criteria the teacher or the class determines. A polaroid photograph may be taken of "the champ" and attached to card stock, dated and posted on the classroom bulletin board.

KEYBOARDING

CHAMP

OF THE WEEK



Name: _____

Date: _____

ADDITIONAL KEYBOARDING TECHNIQUES

Use the 3D strategy to define, describe and demonstrate:

(a) The manipulative parts of the typewriter:

- backspace key
- carriage release level
- carriage scale, alignment scale, position indicator
- margin release key
- tab key, tab clear, and tab set.

(b) Keyboarding procedures:

- tabulating for indentations and centre point
- re-inserting paper and aligning transcript.

(c) Keyboarding rules:

- paragraphing techniques
- use of numeric keyboard
- making punctuation marks not on the keyboard.

STUDENT ACTIVITIES

1. Have students set tabulations for five space indentations and practise indenting by keyboarding a series of short sentences.
2. Have the students set tabulations at 5 space/10 space intervals in a 40-, 50-, 60-space line. Time the students as they type a letter of the alphabet, a short word (and, the) or a number at each tab stop for one-quarter minute, one-half minute, or one minute time lengths.
3. Have students practise re-inserting paper and aligning copy.

THE NUMERIC KEYBOARD

The numeric keyboard may be introduced by:

- directing the students to locate the new keys on the keyboard
- demonstrating the reach-stroke
- having students place their hands in the home-row position and watch the controlling finger move to the "new" key and back to "guide key" position a few times, without striking the key, to learn the direction/distance "feel"
- having students type a tryout drill three or four times for the new key while vocalizing the numbers and special symbols with the teacher
- having students type the same tryout drill with the teacher without vocalizing the numbers and special symbols.

Emphasize the importance of accuracy in typing numbers.

STUDENT ACTIVITIES

1. Brainstorm the different ways in which the accurate use of numbers is important in the home, in business, and in industry.

2. Discuss the use and importance of accuracy in typing numbers in the following contexts:

- store inventories
- travel times
- sales records
- social insurance numbers
- postal codes
- telephone numbers.

Students may be divided into small groups and each group assigned one or more contexts. Have each group elect/select a recording secretary and a chairperson. At the conclusion of the discussion period (about 5 minutes) have the chairperson of each group report on his or her group's discussion.

Community Partnerships

3. Have students collect "real life" documents involving numbers and use the documents as keyboard practice sheets, e.g., price lists, sports statistics, travel schedules.

HORIZONTAL AND VERTICAL CENTRING

As production assignments are introduced, students will display greater motivation if the assignments are modified to reflect their current interests. The basic centring skills could be applied to a variety of individual applications such as:

- centre the menu for today's lunch as advertised in the school cafeteria or as it exists in the student's lunch bag
- plan and attractively centre the menu for a full course meal
- plan and type a "For Sale" notice to sell an item the student no longer requires
- plan and type an advertisement offering the services of the student as a typist
- plan and type a bulletin board announcement of a forthcoming social event in the school
- using classified advertisements that appear in the local newspaper, prepare attractive, centred displays.

STUDENT ACTIVITIES

1. Have students describe the functions of the typewriter parts required for centring
2. Emphasize and develop an understanding of such terms as horizontal, vertical, margins, equal, half, above, below, centre, centre point, left, right, top, bottom, side, single space, double space, triple space, full sheet. Have the students demonstrate a knowledge of these terms by answering questions about them; e.g., "What does vertical mean?" "What is the difference between single spacing and triple spacing?"
3. Have students prepare and/or develop typewriting mystery games or art typing
4. Display samples of projects prepared by students under captions such as "Your good work is showing", "Happiness is _____", "Papers like these really please", "Come out of the shadows. Shine with work like this", "Look who made the Headlines".
5. Have students collect and bring examples of centred announcements to the classroom for a bulletin board display.

PROOFREADING

Requirements for good proofreading:

- spell correctly
- know basic punctuation rules
- know the correct applications of typewriting usages such as expressing time, amounts of money, use of numbers, etc.
- make simple mathematical corrections
- read for consistency of format
- be error conscious
- know the types of errors commonly missed
- know the places errors frequently occur.

Typical errors to watch for when proofing are:

- typographical errors
- transpositions and pileups
- word errors (e.g., you for your)
- spelling errors
- style errors
- grammar and typewriting usage errors
- other types of errors.

Use the following strategies to reduce student keyboarding errors:

- positive suggestions
- pacing and guided writings
- alphabetic sentences and keystroking precision drills
- concentration drills
- quick feedback
- timed personal goal setting.

STUDENT ACTIVITIES

1. Have students establish the habit of proofreading all typewritten work while it is still in the machine or before it comes off the printer.
2. Have students bring to class written assignments they are preparing for other courses for keyboarding and proofreading.
3. Encourage students to scan a newspaper for proofreading errors and prepare a bulletin board collage of the results.

ERROR CORRECTION TECHNIQUES

After students have developed their keyboarding skills to the level that the keys can be located without hesitation, allow them to correct errors. Permission to correct errors removes the tension that leads to errors. The knowledge of the time lost in making corrections helps to convince students of the importance of keyboarding at the control level (the level at which speed and accuracy are maximized).

Use correction tape to correct errors on typewritten originals:

- backspace to the beginning of the error
- insert correction tape behind the typewriter ribbon, and in front of the copy to be corrected
- repeat the original error
- remove correction tape, backspace to the start of the deleted copy and retype in its correct form.

To insert a letter:

- press backspace key (electric or manual typewriter) to the desired position on the copy
- with a manual typewriter, depress the backspace key part way adjusting the element to the required position. (This is not possible on some electric typewriters. The simplest way to make a correction of this kind is to free the paper and make the adjustment manually before inserting a letter.)
- some electric typewriters are equipped with a half-space key which makes insertion of a letter much simpler.

STUDENT ACTIVITIES

1. Have the students try several ways to correct errors (eraser, correction fluid, lift-off tape), and then discuss the advantages and disadvantages of each.
2. Provide prepared drill sheets in which students must insert a word/letter into a given space.

COMPOSITION

Since keyboarding is a tool for writing, not just copying, continual emphasis should be placed on developing students' ability to think at the typewriter and to use it as an aid to composition.

Used as a writing tool, the typewriter provides an excellent opportunity for students to draw from the knowledge developed in other subject areas across the curriculum and apply this to composition at the keyboard. This integration and reinforcement of learning should be encouraged through a variety of composition activities.

STUDENT ACTIVITIES

1. Discuss briefly the old expression "A picture is worth a thousand words!" Have the students type a paragraph about an illustration the teacher has selected (from a newspaper or magazine). The paragraph may be a description of the picture, or it may relate a story to accompany the illustration.
2. Have students compose, at the keyboard, a paragraph about work. Suggested topics might include: The Value of Work, The Teenager and Work, Preparing for a Career, Pay for Work, Women in the World of Work or The Ideal Job.
3. Tell part of a story (with lots of intrigue, adventure, mystery) and ask students to finish it on the keyboard. Allow some students to read their stories to the class, and post others on the bulletin board.

4. Read interesting items from newspapers or magazines and request typewritten comments.
5. Have the students compose letters to "Youth Hotline" or "Ann Landers". Exchange letters and encourage students to compose a creative reply.
6. Have the students write a paragraph describing their keyboarding course as it might appear in a school handbook.
7. Brainstorm different ways keyboarding ability could be used to start a small business on a full-time or part-time basis.
8. Discuss: "What are the advantages and disadvantages of being self-employed as a keyboardist -- an entrepreneur?"

EVALUATION GUIDELINES

Teachers may wish to consider the following when assessing the student's progress in keyboarding:

A. Touch-typing:

- | | |
|---------|--|
| 0/100 | does not use correct fingers, looks to find keys |
| 20/100 | uses correct fingers, looks to find keys, jams key, has poor rhythm |
| 40/100 | uses correct fingers, looks infrequently at alphabet keys, looks at typed copy too often, looks for numbers |
| 60/100 | correct fingering, does not look for alphabet, does not look at typed copy too often, correct use of shift key, tab, and return key, looks for numbers |
| 80/100 | correct fingering, does not look for alphabet, looks occasionally for numbers |
| 100/100 | complete touch mastery of keyboard |

B. Criteria for good posture:

- | | | |
|-------|---|---|
| Head | - | erect, facing copy |
| Back | - | straight, body leaning slightly forward |
| Hands | - | held slightly above machine, at same angle as keyboard |
| Body | - | a hand span from the front edge of the machine, aligned with the centre of the keyboard |
| Feet | - | flat on the floor, slightly apart |

C. Machine manipulation will need to be defined by the teacher and could include the following:

- efficient use of function (service) keys
- proper paper handling techniques
- proper use of shift keys
- proper use of edit keys
- proper/efficient setting of margins
- proper use of return keys
- proper/efficient use of tab keys.

D. Efficiency:

- necessary materials are brought to class and organized for efficient use
- neat submission of materials for grading
- efficient use of class time
- listens carefully and follows instructions.

E. Speed and accuracy: Testing can be done on the basis of proofread or corrected copy. The timings chart can be used for either method.

- The student types for the time required, with an allowable number of errors. A cutoff system halts the word count just before the next error over the limit allowed (e.g., a third error allowance means a cutoff before the fourth error.)

As a student's ability increases, the teacher may reduce allowable errors.

- Students are required to correct errors as they type. Any errors undetected will reduce the net words per minute by two words per minute for each error.

F. Keyboarding production: Testing can be accomplished by:

- Production Days - Copy is accepted on a mailable basis. Work is assigned for a major portion of the period. The amount of work assigned should be within the ability of top students to complete. The mark given is calculated by dividing the completed mailable copy by the assigned material.
- 10 Point System - A job consists of 10 points for a one-page assignment, such as a centring display. Deduct 2 points for a major error, as defined in text (i.e., proofreading, spelling, placement), and 1 point for a minor error (i.e., punctuation). An alternative to this, which is particularly suitable for introductory classes, is to separate the 10 points into 5 for accuracy/proofing, and 5 for format. Deduct 1 or 2 marks for each error within the section.

KEYBOARDING: BUILDING SKILLS

30 AND 60 SECOND TIMINGS CHART

	GROSS WORDS/ MINUTE	NUMBER OF ERRORS					
		0	1	2	3	4	5
A	51	100	97	94	91	88	85
	50	99	96	93	90	87	84
	49	98	95	92	89	86	83
	48	97	94	91	88	85	82
	47	96	93	90	87	84	81
	46	95	92	89	86	83	80
	45	94	91	88	85	82	79
	44	93	90	87	84	81	78
	43	92	89	86	83	80	77
	42	91	88	85	82	79	76
	41	90	87	84	81	78	75
	40	89	86	83	80	77	74
	39	88	85	82	79	76	73
	38	87	84	81	78	75	72
	37	86	83	80	77	74	71
	36	85	82	79	76	73	70
	35	84	81	78	75	72	69
	34	83	80	77	74	71	68
	33	82	79	76	73	70	67
	32	81	78	75	72	69	66
B	31	80	77	74	71	68	65
	30	78	75	72	69	66	63
	29	76	73	70	67	64	61
	28	74	71	68	65	62	59
	27	72	69	66	63	60	57
	26	70	67	64	61	58	55
	25	68	65	62	59	56	53
	24	66	63	60	57	54	51
	23	64	61	58	55	52	49
	22	62	59	56	53	50	47
C	21	60	57	54	51	48	45
	20	58	55	52	49	46	43
	19	56	53	50	47	44	41
	18	54	51	48	45	42	39
	17	52	49	46	43	40	37
	16	50	47	44	41	38	35
	15	48	45	42	39	36	33
	14	46	43	40	37	34	31
D	13	44	41	38	35	32	29
	12	42	39	36	33	30	27
	11	40	37	34	31	28	25
	10	38	35	32	29	26	23
	9	36	33	30	27	24	21
	8	34	31	28	25	22	19
	7	32	29	26	23	20	17
	6	30	27	24	21	18	15
F	5	28	25	22	19	16	13
	4	26	23	20	17	14	11
	3	24	21	18	15	12	9
	2	22	19	16	13	10	7
	1	20	17	14	11	8	5
		18	15	12	9	6	3
		16	13	10	7	4	1
		14	11	8	5	2	0
		12	9	6	3	0	
		10	7	4	1		
		8	5	2			
		6	3	0			
		4	1				
		2					
		0					

PROGRESS RECORD FOR KEYBOARDING

CLASS _____ STUDENT _____

[illegible]

THEME: All About Business
LEARNING ACTIVITY: Operating a Small Business
GRADE (suggested): 9
TIME (suggested): 20-25 hours (May be combined with learning activities in other I.O.P. Practical Arts courses.)

LEARNING OBJECTIVES

The student will:

Concepts:

- understand what it means to assume responsibility
- recognize basic terminology of entrepreneurship
- understand the basic procedures that need to be followed in order to start and operate a small business
- understand the employer-employee relationship.

Skills:

- participate in planning a business venture
- assume responsibility implementing a business plan
- evaluate the outcome of a business venture.

Attitudes:

- appreciate the value of self-reliance
- appreciate the value of good human relations in business.

RESOURCES

Teacher Resources

A variety of resources related to entrepreneurship and small business operations may be obtained from:

- Alberta Consumer and Corporate Affairs

Offices are located in the following areas:

Calgary	297-5700
Edmonton	427-5782
Grande Prairie	743-7231
Lethbridge	381-5360
Medicine Hat	529-3535
Peace River	624-6214
Red Deer	340-5241

- Canadian Foundation of Economic Education
252, 3100 St. West
Suite 7-205
Toronto, Ontario
M5S 1V5
(416) 968-2236

- Canadian Organization of Small Business
Suite 103, 10301 - 108 Street
Edmonton, Alberta
T5J 1L7
(403) 423-2672
- Ministry of Industry Trade and Technology
Province of Ontario
Queens Park
Toronto, Ontario
M7A 2E1

Student Resources

- Local newspaper - display and classified business advertisements
- Flyers announcing new business operations
- Copies of notice board advertisements offering entrepreneurial services.

SUGGESTED BUSINESS VENTURES AND STRATEGIES

This learning activity is designed to enable students to plan and implement a small business venture in the school. The ventures undertaken should relate to the following eight occupational clusters. Examples of potential business ventures are indicated below each cluster.

Agribusiness

- lawn and garden care
- bedding plant sales
- basic lawn tools clean-up.

Business and Office Operations

- operate a concession at a school dance or sports event
- telephone answering or messenger service within the school
- courier service.

Construction and Fabrication

- construct and sell
 - extension cords
 - plastic bud vases
 - garden trowel or dustpan
- basic bicycle maintenance.

Creative Arts

- take school and individual photography
- enlarge negatives
- craft sales.

Natural Resources

- sell firewood
- make paper from wood pulp.

Personal and Public Services

- child care services
- beauty care services
- laundry/ironing service.

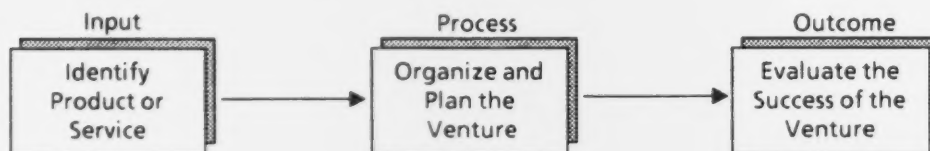
Tourism and Hospitality

- food production and sales (sandwiches, baked goods, etc.)
- window cleaning
- paper/flyer deliveries
- pet minding/sitting.

Transportation

- car wash service
- basic small motor maintenance
- storage service.

Subsequent to an introduction to entrepreneurship, encourage students to identify a product or saleable service, organize and plan the venture, market the product or service, and evaluate the success of the venture. The following decision-making model may be applied:



SUGGESTED STRATEGIES INCLUDE HAVING STUDENTS:

1. Work in groups
 - select their own team
 - three to five members per team.
2. Organized and plan
 - define the task
 - outline the plan after considering alternatives
 - implement the plan.
3. Adopt a marketing strategy
 - develop the strategy
 - implement the strategy
 - evaluate the strategy.

Provide students with sample case studies of successful entrepreneurial activities. (See Resource 1: "Successful Entrepreneurs" and Resource 2: "The New Entrepreneurs".)

Plan cooperatively with teachers of the other I.O.P. courses -- Personal and Public Services, Technical/ Occupational -- and, where necessary, arrange a schedule to facilitate the production of goods and/or the availability of services to meet a coordinated time line for each business venture.

Encourage each student group to identify a community member who would be willing to act as a group's mentor to provide guidance or assistance as needed.

Consider the alternative ways in which group leadership may be selected; e.g., by election, by natural involvement. Assist each group to develop both a leadership and collegial structure.

ENTREPRENEURSHIP DEFINED

An entrepreneur is an individual or group who creates, develops, and manages a business venture at personal risk for a potential profit.

Successful entrepreneurs possess the following abilities and skills:

Knowledge:

- decision-making ability
- organizational ability
- knows how to make a product and/or provide a service.

Skill:

- has the skill to make a product or give good service
- creativity and inventive ability.

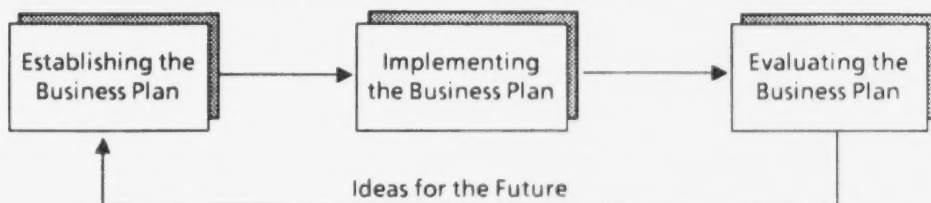
Attitude:

- appreciates need for good human relation skills
- self-confidence
- prepared to take moderate risks.

STUDENT ACTIVITIES

1. Have students relate entrepreneurial activities they have undertaken.
2. Have students research and relate to the class cases of entrepreneurial activities undertaken by others.
3. Using the model of a successful entrepreneur, Resource 3: "Characteristics of a Successful Entrepreneur":
 - a. discuss the meaning of each component
 - b. have students identify the traits that they believe they possess and those that they believe other classmates possess.
 - c. brainstorm to indicate ways in which would-be entrepreneurs might be able to develop each trait.

A three-stage model similar in design to the decision-making/problem-solving model may be applied to each business venture initiated by a group of students.



Community Partnerships

4. Invite local entrepreneurs to discuss what is involved in being an entrepreneur

ESTABLISHING THE BUSINESS PLAN

1. Business plans will obviously vary with each group of students. Where possible, have each group in the class engage in a different type of venture; e.g., sales, production, service. Where student numbers and interests permit, each of these components may be handled by individuals within each group. This strategy permits each student to experience and assume sole responsibility for a task while retaining the responsibility to work as a member of a team.

An alternative strategy in a small class might involve all students in a single business venture. In this situation, two or more students may take responsibility for a specific segment of the business plan.

In both strategies, learning to take individual and group responsibility are primary learning objectives.

2. Have each group of students use the decision-making/problem-solving model to:
 - identify the business venture (ensure that the venture is practical, given restraints of time and resources)
 - identify the resources needed
 - use a flow chart to lay out the strategies to be used
 - identify timelines
 - assign responsibilities to each group member
 - consider how people will be informed of the products and services available -- the marketing plan.

IMPLEMENTING THE BUSINESS PLAN

Use a decision-making/problem-solving process at each stage of the implementation.

1. Establish a production schedule to indicate:
 - time needed to produce each product, or
 - time needed to perform each service.
2. Consider the alternative marketing strategies. Select the most appropriate strategies.
 - posters • telephone sales
 - displays • advertisements
 - flyers • networking
3. Produce the product or develop the service
4. Market the product or service:
 - implement the most appropriate strategy
 - use other strategies as necessary
5. Sell the product or service

EVALUATING THE BUSINESS VENTURE

1. Evaluate the success of the venture:
 - profit
 - number of satisfied customers
 - numbers of repeat orders.
2. Consider what each group would do differently if they were to repeat the same business venture.

In addition to the above activities, related learning opportunities can be provided by having students:

- maintain a log of all activities performed
- keep financial records using simple bookkeeping format
- calculate percentage profit/loss on each sale or service
- calculate profit/loss from an increased production or service schedule.

STUDENT ACTIVITIES

1. During and at the conclusion of each business venture have students discuss how it feels to be in business for themselves, to be "their own boss"?
2. Have students project their feelings and learnings to their possible future career. Discuss:
 - the reasons why I do/do not want to be an entrepreneur are ...
 - being an entrepreneur makes me ...
3. Have each group's mentor provide the group with feedback on their performance. Where appropriate, have the mentor discuss a given group's performance with the whole class.

A Certificate of Entrepreneurship may be produced and issued to each student who participates in a business venture as a reminder and as a reinforcement of the knowledge learned and the skills and attitudes developed through this learning activity. (See Resource 4: "Certificate of Entrepreneurship".)

SUCCESSFUL ENTREPRENEURS: Selected Case Studies

MONEY

Clever kids are cashing in

Summer's a hot time for a new generation of pre-teen entrepreneurs

By Dennis Blank

Hundreds of precociously profit-minded kids are proving this summer that age has no monopoly on making money.

Through August, 82,000 teens will be self-employed, and an increasing number of kids 12 and under are striking out on their own, too.

"The young entrepreneur is emerging as this generation's new

hero," says Vern Harnish, national director of the Association for Collegiate Entrepreneurs.

Harnish got more than 4,000 inquiries from teens and pre-teens after *Reader's Digest* published an article in February about young entrepreneurs.

Educators are adding encouragement. This fall, Tracey Gilbreath's fifth- and sixth-grade students in Hunt, Texas, will start

with \$3,000 in seed money from previous class money-making projects.

"The whole subject is picking up speed," Harnish says. "More parents are saying, 'Hey, rather than giving them an allowance, I am going to encourage my children to earn it in some little venture.'"

Here's a look at two ventures that succeeded in a big way, plus start-up tips.

Her secret: Scissors and a nose for news

by Larry Flemming

Like any successful business person, Holly Smith of Wichita, Kan., wants her newspaper clipping service to grow. And with school out, she's devoting more time to her goal: Doubling sales by year's end.

Since she sent out her first mailing about a year ago, she has earned more than \$550. Holly, 12, who will be in eighth grade next fall, spends a couple of hours a day reading local newspapers.

If she spots an article about one of her clients — mostly local entrepreneurs — she makes five copies and mails them for a fee of \$2. She tries to recruit new clients by sporting articles and sending them clippings and a sales letter. ("I'm an entrepreneur, age 12..." it begins.)

Holly's not sure what she'll do with her earnings. "My brothers and sisters think I should save it to buy a car."

She'd probably cut a good deal. "She has a real good head for business," says her father, Doug. "Everyone hates to go shopping with her, because she takes so long to check out the prices."

This firm draws on a family of talents

TAKA Enterprises, a fledgling stationery company based in Moorehead, Minn., is entering its busiest season. Since it began last August, most of the company's \$350 in sales have come from crafts shows, which abound during the summer.

The owners are fledglings, too — Trevor, 9, Audrey, 9, Kevin, 5, and Amy, 2, the children of Craig and Carol Brandt. The kids launched the company with part of the \$1,200 they've earned as prizes in almost 40 coloring contests. Their product line includes notepads and greeting cards bearing the Brandts' prize-winning art work.

"The most fun part is doing the drawing," says Trevor. "That's the only thing Amy can do right now." Audrey has branched off into making personalized birth announcements.

The children package the stationery in batches of eight to 12 sheets, wrap it, and head for the stores and craft shows. One recent Saturday morning, the two oldest were up at

Tips for pre-teen tycoons

Think big, start small. Don't risk more than you can spend; use allowance to buy a product that can be resold at a profit. Write for reports by the Center for Entrepreneurship, Wichita State University, Wichita, Kan. 67208.

- some ideas:
- Repair bikes
- Care for pets, house plants
- Sell seeds and plants
- Wash cars
- Address envelopes
- Paint house #'s on curbs
- Do typing, copying services
- Wrap gifts

6:00 a.m. "raring to go," and ended up selling more than \$100 worth at a weekend craft show, their father said.

They're paid 60 cents an hour for their time, the rest goes back into the business.

"They are more successful if they come up with the ideas themselves," says Brandt, who's a salesman in a music store. "We're amazed at how they're willing to work."

USA WEEKEND*JULY 4-6, 1986*9

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THE NEW ENTREPRENEURS
(Maclean's Vol. 97, No. 29, July 16, 1984)

By combining their schooling with their ingenuity and a dash of entrepreneurial spirit, some young Canadians have managed to escape the grey spectre of unemployment by working for themselves. Some accounts of their success follows:

Roxane Taylor and Nancy-Anne Gerdes: In 1982 the two high school graduates from Calgary decided to supplement their \$110-a-week earnings as part-time grocery clerks. Their inspired idea: custom-designed, hand-painted running shoes. Starting with a booth at the Calgary Stampede, Taylor, 24, and Gerdes, 25, have watched their innovation grow into a busy retail and wholesale company called Funky Punks. Recently relocated in larger premises in Calgary's Stephen's Avenue Mall, Funky Punks sells the \$34.99 running shoes as well as a complete line of off-beat clothing and accessories for men and women. Pleased by monthly sales of \$12,000 and the fact that they employ five people, Taylor and Gerdes are planning to expand their operation to Vancouver and Toronto next year. Said Taylor: "It is wonderful to see an idea grow into a business."

Vicent Micallef: Eighteen months ago he started with an idea based on computer software. "Now," he said proudly, "we employ 18 people and are looking at operating 72 stores nationally by 1986." Micallef graduated in business administration from Simon Fraser University in Burnaby, B.C., last August. Now he is a partner, along with his brother, Joseph, and another Simon Fraser graduate, Bud Eaton, in Compu Software Inc. Compu is one of the biggest business success stories to come out of Vancouver in recent years. While still at university, Micallef, an avid home computer user, noticed that most computer stores only sold computers. Buyers often had to obtain the programs that ran the machines - the software - separately. Said Micallef: "There was a huge market niche for microcomputer software that was not being addressed." The three Vancouverites set out to fill the gap and since April, 1983, they have opened stores in Vancouver, North Vancouver and one in Victoria. And they plan to open three other outlets in Vancouver and Toronto. Said Micallef: "Things have been so busy that I have not had time to count how rich I have become."

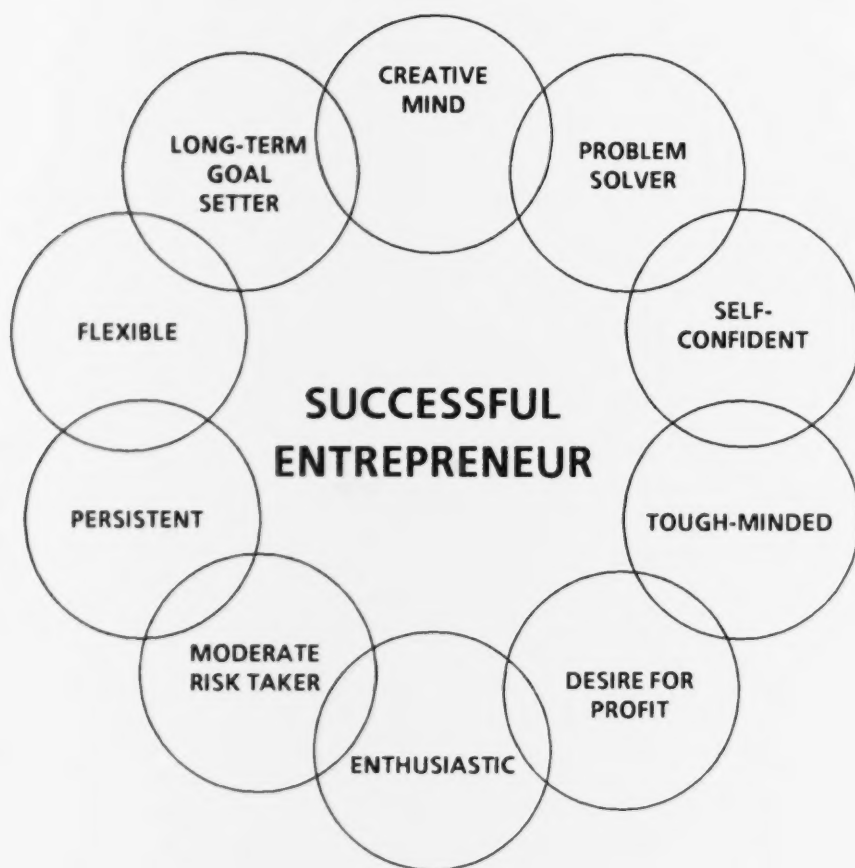
Alena Alberani and Karen Obermaier: Dressed in colourful clown outfits, Alberani, a 19-year-old student at Halifax's Mount St. Vincent University, and her partner, Obermaier, also 19, a student at Dalhousie University, roam the streets of Halifax distributing advertising flyers for a local restaurant. They call their business Motion Promotions and they started it about a month ago. The two women became business partners after they were hired to do a temporary promotion job for another company. "After five days we were unemployed again," said Alberani. "So we decided to create our own work." With an original investment of \$600, Alberani and Obermaier began to advertise their personalized promotion service. They charge \$12 an hour to distribute material on the street. Said Alberani, who expects that she will earn enough in the next few months to finance her language studies next year. "I never envisioned that I would be doing this."

Heather MacKenzie: At 24, she is one of seven MBA students who created a Montreal company called McGill Business Consulting Bureau in May. The young entrepreneurs are offering their advice to companies for \$90 a day. Said MacKenzie: "We are doing everything from market research to arranging a government patent for a client with a new invention." The seven partners expect to generate \$36,000 worth of business by the end of the summer. Said MacKenzie: "We all came into this not only to have a job but to give ourselves some practical experience in our chosen field."

Joseph Gonyeau: Success has overwhelmed the 22-year-old owner of Taygon Contracting Ltd. of Texdale Ontario. Gonyeau is a business administration student at Humber College and he opened his landscaping and grounds maintenance company last summer after deciding that temporary summer jobs washing dishes and loading trucks were too demoralizing and paid too little. He took out a bank loan for \$5,000 and set up his office in the back of his parents' house. Taygon now claims monthly sales of \$12,000, and Gonyeau employs five full-time staff. Said Gonyeau: "It has gone so much better than I expected that I have had to turn business away."

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CHARACTERISTICS OF A SUCCESSFUL ENTREPRENEUR



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XYZ SCHOOL

CERTIFICATE OF ENTREPRENEURSHIP

STUDENT: _____

**Has successfully participated in a
small business venture product**

Name of project: _____

19__

Teacher _____

Principal _____

THEME: All About Business
LEARNING ACTIVITY: Keeping on Track: Specialized Filing Systems
GRADE (suggested): 9
TIME (suggested): 8-10 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the basic principles of specialized filing systems
- recognize numeric, geographic and subject systems of filing

Skills:

- begin to develop the ability to file by number, location and subject
- demonstrate the ability to access information from specialized filing systems.

Attitudes:

- appreciate the value of specialized filing systems as systems of organizing information
- follow the basic rules of each specialized filing system.

RESOURCES

Teacher Resources

3 x 5 cards
Catalogues - parts, seeds
Atlases

Student Resources

Students may obtain outdated copies of parts and warehouse catalogues from community business operations; e.g., automotive repair shops, hardware store, electrical and plumbing supply operations

TEACHER BACKGROUND INFORMATION

Review the Grade 8 Learning Activity "Alphabetic Filing". Have students demonstrate the ability to apply the basic steps and rules of alphabetic filing identified.

Steps:

- Step 1: Indexing
- Step 2: Identifying Filing Units
- Step 3: Alphabetizing.

Rules:

Rule 1: Last name first; first name; middle name or initial
Rule 2: Nothing comes before something

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- Rule 3: Short names come before long names
- Rule 4: If the last names are the same, the first name determines order
- Rule 5: If the last and first names are the same, the middle name determines the correct order
- Rule 6: Prefixes are part of the last name
- Rule 7: A nickname should be changed to a given name for filing
- Rule 8: Hyphenated names should be treated as one unit

SPECIALIZED FILING SYSTEMS

Specialized filing systems have been developed to meet the needs of different types of business operations. Each business needs to keep records of such things as staff, production costs, and profits or losses. A well-developed and maintained filing system allows them to:

- store information
- access stored information.

The specialized filing systems addressed in this learning activity are:

- Numerical Filing
- Subject Filing
- Geographic Filing.

Many businesses are now using computers to perform filing functions; however, a great deal of information is still stored in and accessed from filing cabinets. Regardless of whether a computer or a filing cabinet is used, the same basic rules of filing apply.

STUDENT ACTIVITIES

1. Brainstorm to identify situations in which a non-alphabetic system of filing might be used.
2. Have students indicate a collection of things they possess (records, tapes, discs, clothes, sports equipment, books, magazines, comics, etc.), and discuss the best filing system they might use to keep a record of each collection.
3. Brainstorm:
 - "Why do businesses keep records?"
 - "What types of records might a business keep?" (Reference the brainstorming sessions to businesses which relate to the eight occupational clusters students will be encountering in senior high school.)

NUMERICAL FILING

Numerical filing means to file in numerical order.

Business operations that may use a numerical filing system include:

- insurance companies - policy number
- government departments - vehicle licence plates, family allowances, Social Insurance Numbers.

- hospitals - patient records
- parts departments and warehouses - stock ordering, inventory control
- credit card companies - charge account records

The **advantages** of a numerical filing system include:

- confidential information can be kept in a numbered rather than a named file
- all pieces of information related to a specific topic can be grouped together
- the system can be expanded to any number of numerical files - papers such as numbered receipts, invoices, orders, etc., are more easily grouped in sequence
- numbered files are easier to locate than are alphabetical files

The **disadvantages** of a numerical filing system are:

- a separate alphabetic card index is required for cross-referencing purposes
- if file number is not known, it is time consuming to locate a given numeric file (must first consult the related alphabetic card index)

Parts of a Numerical Filing System

The two main parts of a numerical filing system are:

- the alphabetical card index file
- the numerical information file

The numerical filing system operates by giving a number to each new file opened. The numbers are given in sequence. The first file is given the number 1, the second file, number 2, the third file, number 3, and so on. (Often 1, 2, 3 would be used, or 10, 20, 30, etc. to allow additional files to be inserted.)

Alphabetical Card Index File

The alphabetical card index file is one of the two main parts of a numerical filing system. As each number is assigned to a file, an index card (3"x 5" card) is completed to show the name, subject, person or topic to which the file relates along with contact persons, address and phone numbers. The assigned file number is then placed in the upper right-hand corner of the index card.

Account of John Smith	File No. 123
999 - Anywhere St. Anytown, AB T2T 0L0	

In every numerical filing system:

- the index cards are filed alphabetically
- the files are filed numerically

Numerical Information File

The numerical information files contain all information related to a specific company, person, or topic. Finding or filing information in a numeric file is a two-step process:

1. consulting the alphabetical card index to obtain the numerical code number
2. finding the file with the same code number.

STUDENT ACTIVITIES

1. Brainstorm to identify:
 - a. the kinds of documents that might be filed numerically
 - b. the types of businesses that might use a numeric filing system.
2. Discuss the advantages and disadvantages of using a numerical filing system.

Community Partnerships

3. Locate and visit companies that use a numerical filing system, such as:
 - parts supply and service companies
 - automotive repair companies
 - distribution companies
 - warehouse and trucking companies.

Geographical Filing

Geographical filing is used to file items according to their location:

- country
- province
- city
- town
- area.

Geographical filing systems may be used by companies that provide goods and/or services to a large area. These companies may separate their files into provincial, civic, town or area service areas.

STUDENT ACTIVITIES

1. After liaising with I.O.P. social studies teachers to facilitate crossover and transfer of related geographic information, have students set up a geographic filing system for:
 - a. Province of Alberta. Geographic divisions may include:
 - Northern Alberta
 - 4 largest cities
 - 2 towns
 - Southern Alberta
 - 4 largest cities
 - 2 towns
 - b. Western Canada (Manitoba, Saskatchewan, Alberta, British Columbia)
 - provinces
 - capital cities
 - cities with greatest population

2. Discuss the advantages and disadvantages of using a geographical filing system.

Community Partnerships

3. Locate and visit companies that use a geographic filing system such as:
 - trucking companies
 - warehouse and storage companies
 - distribution companies

Subject Filing

Subject filing systems group related information by subject or topics. The subjects or topics are arranged alphabetically and follow the same general rules as alphabetic filing.

Subject or topic filing is often used in the home to group receipts, bills, or records of related things such as:

- gas
- electricity
- water
- power
- telephone

This system of filing is relatively easy to use because all information related to a subject or topic is kept in one file. This system is also easy to expand by simply opening another subject/topic file and placing it alphabetically between existing files.

STUDENT ACTIVITIES

1. Discuss: "Which system of filing appears to be the easiest to use? Why?"
2. Have students complete Resource 1: "Advantages and Disadvantages of Filing Systems" (Teacher may wish to have students work in groups of two or three for this activity or to use a brainstorming strategy. Resource 2: "Key" provides answers for this activity. Both may be made into transparencies and used to stimulate and/or reinforce a brainstorming strategy.)
3. Identify the filing system that might be used in each of the following situations. Indicate the reason for your choice:
 - a. a record of students' projects and marks _____

 - b. maintaining confidential sales records _____

 - c. records of sales by territory _____

 - d. information related to the population of Canada _____

e. subjects offered in the local high school _____

f. a diary _____

4. What might be contained in a file labeled "MISCELLANEOUS?"

FILING PROCEDURES

The following filing procedures are commonly used in business operations; however, when on-the-job, students must follow procedures already in place.

Setting Up and Using a Filing Cabinet

1. Always place the file behind the guide letter or heading.
2. File guides should be placed every 2 to 3 cm. of the file drawer length.
3. If a general or miscellaneous folder is to be used, it should be placed behind the last folder in the section.
4. The most recently dated correspondence should be placed at the front of the folder.
5. Start a separate file in a miscellaneous file folder once five or six letters concerning a specific topic or individual have been collected.
6. Keep the folders neat. Don't have papers contents standing out of the edges - they will be damaged.
7. Labels should be neatly typed on the folders and should contain the correct name and/or number.
8. Don't place more than about 100 pages in any folder. If necessary, start a second folder.
9. Leave 10 to 15 cm of working space in each file cabinet drawer to enable easy removal and replacement of files.
10. Don't pull folders out by the tabs. They will become damaged and will tear off.
11. Remove the file folder from the drawer when adding to or removing its contents to prevent bending or misfiling.
12. Tops of papers should always be to the left side of the folder and face forward in the folder.
13. Use staples rather than paper clips or pins that may fall off.
14. Close file cabinet drawers when file tasks are completed. An open top drawer may tip the cabinet over, and an open bottom drawer can be a tripping hazard.

15. Old files (those three or more years old) may be transferred to a second location so that only current files are in the main filing system.
16. When a file is removed, place an OUT CARD in the file cabinet to indicate where the file can be found should it be needed.

Preparing Documents for Filing

1. When a document is first received, stamp it with the correct date and time.
2. After the document has been read, it should be marked ready for filing.
3. Before filing, the document should be coded and cross-referenced so it can easily be located at a later time. This step is especially important if the document is filed using a numerical filing system.

Finding the Correct File

1. Know the system you are using.
2. Remember and apply the Alphabetical Filing Rules.
3. If a file appears to be missing:
 - Check the folders adjacent to it. It may have been misfiled.
 - Look under similar names; i.e., ones that may sound the same but be spelled differently.
 - Check to see if the file is out. Whenever a file is removed, an OUT CARD should be used in the cabinet.
 - Look for cross-references.
 - Check to see if the file is stuck to another (paper clips, etc.)
 - Check to see if the document has not yet been filed.

STUDENT ACTIVITIES

1. Have students demonstrate their ability to access filed information using each of the four filing systems discussed in this learning activity:

Alphabetic Filing	- access library books by author and title
Numeric Filing	- access library materials using the Dewey Decimal system - identify parts by code number
Geographic Filing	- access library clippings about the area in which you live
Subject Filing	- access library materials related to a given topic (e.g., automobiles, keyboarding, cooking)

2. Encourage students to maintain their notebooks/binder using one or more of the filing systems they have learned.

Community Partnerships

3. Have students assist secretarial staff, teachers, librarians, guidance counsellors, or community partners in maintaining existing, non-confidential files.
4. Have students visit a variety of business operations and identify the various types of filing systems used. Use Resource 3: "Observation Record Sheet - Filing System" to record observations.
5. Invite a school secretary, librarian, and community partners who have the responsibility to set up and maintain filing systems to discuss with the class the importance of maintaining files in proper order.

**ADVANTAGES AND DISADVANTAGES
OF FILING SYSTEMS**

FILING SYSTEM	ADVANTAGE	DISADVANTAGE
Alphabetic		
Numeric		
Geographic		
Subject		

**KEY: ADVANTAGES AND DISADVANTAGES
OF FILING SYSTEMS**

FILING SYSTEM	ADVANTAGE	DISADVANTAGE
Alphabetic	- records are combined for specific individuals or companies - there is no index required - there is space for additional records that do not fit a particular name - simple	- too many files under more common names - records may not always be filed in the correct place
Numeric	- numbers can be used as a shorthand way of referring to specific clients - files can be easily added to the end of the existing files - accurate	- a separate card index is required - time consuming to locate required files if only the name is known
Geographic	- easy to locate files if the geographic location is known	- time consuming to sort and file
Subject	- records of a common nature are all grouped together - easy to expand	- sometimes difficult to locate specific files - time consuming to locate files based on clients' names

THEME: All About Business (Personal and Public Services, Technical/Occupational)
LEARNING ACTIVITY: The Receptionist – Creating the First Impression
GRADE (suggested): 9
TIME (suggested): 8-12 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the basic duties performed by a receptionist
- apply the principles of good reception to varied contexts.

Skills:

- demonstrate the ability to relate well to others
- handle the basic duties of a receptionist (telephone answering, customer relations, appointment booking).

Attitudes:

- appreciate the role of the receptionist in creating a first impression of a business
- show genuine concern for others.

RESOURCES

Appointment book
Telephone (multi-line)

TEACHER BACKGROUND INFORMATION

This learning activity provides applications, review and reinforcement of previously learned concepts, skills and attitudes including:

- "Alphabetic Filing"
- "Keyboarding - the Alphabetic Keyboard"
- "The Telephone - Making the Connection"
- "Telephone Directories - Who's Who and What's What"

This learning activity may also be taught in other I.O.P. Practical Arts courses as the concepts, skills and attitudes, developed through this learning activity are applicable to both the Personal and Public Services and the Technical/Occupational courses. For example, this learning activity can be taught in the context of a:

- business office
- medical or dental clinic
- beauty salon
- restaurant
- parts/warehouse counter
- direct or indirect sales operation

- movie theatre
- car-rental agency
- information booth
- car/bicycle rental agency.

Recognizing the importance of both the service and work skills components of this learning activity to each student's growth and development, teachers are encouraged to consider the value of offering this learning activity in two or more courses. By relating the learning activity to two or more of the eight occupational clusters in each of the three courses, students will be able to reinforce previous learning, build more skills and appreciate the transferability of concepts, skills and attitudes learned to a variety of potential careers.

Role of the Receptionist

The receptionist is often the first contact between a visitor (customer, guest, salesperson) and a business. The receptionist's behaviour provides the visitor with a positive or negative first impression about a business.

A receptionist creates a positive impression of the business by demonstrating:

- good grooming
- good manners
- good communication skills
- good telephone handling skills
- accurate recording of information
- good work habits
- good mail handling skills

Duties of a Receptionist

A receptionist may perform all or some of the following duties:

- greet visitors
- handle customer concerns and complaints
- sort and distribute mail
- handle telephone calls
- keep records
- keyboard
- make appointments
- photocopy
- provide information.

STUDENT ACTIVITIES

1. Brainstorm: "What should a receptionist do to provide visitors with a positive image?"
2. Using the brainstormed responses, have students categorize the items under topics as outlined in Resource 1: "Behaviours of a Good Receptionist".

Community Partnerships

3. (a) Visit the school office and other operations that employ a receptionist who comes into direct contact with visitors. Have students observe each receptionist's behaviour and complete Resource 2: "Receptionist Observation Record Sheet for each receptionist observed.
- (b) Have students compare and discuss observations upon return to class. Have each student make a presentation on "The Best Receptionist I Observed" and indicate reasons for the choice.

RECEIVING VISITORS

The following scenario may be role played in a context appropriate to the course:

1. As a visitors approaches your reception area
 - smile
 - introduce yourself
 - "Hello, my name is _____"
 - enquire politely what the visitor wants:
 - "May I help you?"
 - "Who would you like to see?"
 - "Do you have an appointment?"
 - "Do you have a reservation?"
 - "What is your name?"
2. Inform employer, operator, waiter, etc., of visitor's arrival.
3. If the visitor has to wait, suggest that they
 - take a seat in the waiting area
 - help themselves to a magazine from the rack.
4. If they have an appointment, inform them if there will be a few minutes delay.
5. Offer coffee if available (black? white? sugar?).
6. Escort or direct the visitor to requested location or person.

STUDENT ACTIVITIES

1. Provide students the opportunity to play the role of both receptionist and visitor. Role play and discuss the reactions and perceptions in each scenario of:
 - good and bad receptionist behaviours
 - appreciative and grumpy visitors
 - keeping a visitor waiting
 - having very old magazines in a waiting area.

2. Assign students to act as classroom receptionists on a daily/weekly rotation basis. It will be their duty to respond to knocks on the door, answer the intercom/telephone, etc.
3. Initiate job shadowing and mentorship opportunities for students to gain first-hand experience of what it means and what it takes to perform the duties of a receptionist.
4. Encourage students to seek part-time jobs in which the receptionist skills learned in the practical arts can be gainfully used.

OTHER DUTIES

In addition to the primary responsibility of handling visitors, the receptionist may be required to perform other duties including:

- filing (Review Learning Activity: "Alphabetic Filing")
- keyboarding (Review Learning Activity: "The Alphabetic Keyboard")
- using the telephone (Review Learning Activities: "The Telephone - Making the Connection" and "Telephone Directories - Who's Who and What's What")
- handling mail (Review Resources 3-7 with students to provide introductory information on these receptionist duties)
- handling petty cash
- photocopying
- maintaining office supplies
- coffee making.

STUDENT ACTIVITIES

1. Encourage students to share their on-the-job experiences with one another and to compare employer expectations, employer-employee relationships, as well as the range of duties performed.
2. Have students identify further knowledge, skills and other desirable attitudes that would be required to become a receptionist in different types of business.
3. Discuss:
 - "Can a receptionist be self-employed? How?"
 - "What might be some of the advantages, disadvantages of being self-employed?"
 - "What jobs, related to reception work, can lead to self-employment?"

Community Partnerships

4. Have students practise and perform receptionist duties in real life situations through field experiences, volunteer work and/or part-time jobs in:
 - the classroom or lab
 - school library
 - local church, hospital, youth group
 - medical or dental clinics.

Students may be expected to assist with:

- a. sorting and distributing mail in the school or business office (see Resource 3: "Mail Handling Procedures")
- b. using the school or business photocopier to make photocopies (see Resource 4: "Photocopying")
- c. maintaining classroom/lab/office supplies and keeping a record of supplies used and supplies to be ordered (see Resource 5: "Supply Handling")
- d. helping a school secretary maintain cash records of sales of postage stamps, pencils and other small items (see Resource 6: "Handling Petty Cash")
- e. taking care of the staff room coffee for a week. (See Resource 7: "Coffee Service")

BEHAVIOURS OF A GOOD RECEPTIONIST

CATEGORIES OF BEHAVIOUR	INDICATORS OF A GOOD RECEPTIONIST
Grooming	
Manners	
Communication	
Telephone Handling	
Information Recording	
Work Habits	
Mail Handling	

RECEPTIONIST OBSERVATION RECORD SHEET

Name of Business: _____

Type of Business: _____

Number of Receptionists: _____

Duties performed: _____

Receptionist Behaviours:

BEHAVIOUR	OBSERVATIONS
Grooming	
Manners	
Communication	
Telephone Handling	
Information Recording	
Work Habits	

MAIL HANDLING PROCEDURES**Incoming Mail**

- a. Make sure that mail has been delivered to the correct company and address.
- b. Do not open any mail marked "Personal & Confidential". Deliver this mail to appropriate party unopened.
- c. Open and date-stamp mail received using current date (and time if applicable).
- d. Ensure that a return address is on the incoming correspondence; if not, staple envelope to correspondence.
- e. Record mail received/sent in a log (if applicable).
- f. Distribute mail to appropriate individuals.

Courier Deliveries

- a. When a courier delivers an item, the receptionist may be required to sign for it. Check to see if the item has been delivered to the correct company and address.
- b. Keep the delivery slip (in case a follow-up is required).
- c. Distribute courier deliveries immediately. (Chances are that if an item was sent via a courier service, the party is urgently waiting for the information/material.)

Outgoing Mail

- a. Make sure that all envelopes and packages contain complete return address and sender's name.
- b. Ensure that appropriate postage is affixed:
 - if using a postage meter be sure to use current date
 - if postage meter ink has faded, replace ink cartridge
 - when using a postal meter, record daily ascending and descending registers. Make sure that there is enough money in the postage meter. (The postage meter generally locks when it goes below the \$10.00 position).
- c. Mark any special envelopes (i.e., Special Delivery, Air Mail).
- d. Separate local and out-of-town mail.
- e. Arrange for pick-up or drop off mail at postal box.

PHOTOCOPYING

Get to know the photocopy equipment available by studying the User Guide that is provided with the equipment. Make sure you understand the following parts of the equipment and the procedures to be used:

1. Control Panel

- a. Familiarize yourself with indicators and status codes
 - Be able to interpret the signs and symbols

2. Paper Trays

- a. Paper sizes used in the machine
 - 8 1/2" x 11"
 - 8 1/2" x 14"
 - 11" x 17"
- b. How to add paper
- c. How to change from one paper size to another

3. Making Copies

- a. Paper placement on the document glass
- b. Number of copies required
- c. Copying with a semi-automatic document handler
- d. Paper tray bypass
- e. Job interrupt (cancel)
- f. Copy contrast
- g. Copying books
- h. Two-sided copying
- i. Reduction/enlargement
- j. Sorter

4. Clearing the Paper Path

- a. What to do in case of a jam

5. Equipment Care

- a. Cleaning the document glass
- b. Maintaining supplies

SUPPLY HANDLING

1. Make sure that you have an adequate supply of basic office items including:

pens	envelope labels
pencils	tape
erasers	staplers
rulers	staple removers
paper	paper clips
envelopes	liquid paper
telephone message pads	stamp pads
typewriter ribbons	scissors
typewriter correcting tape	elastic bands
file folders	string
file labels	glue

2. Items may be obtained from a supply room or supply clerk, or ordered through an appropriate stationery company (check Yellow Pages).

When ordering from a stationery company, provide the following information:

- company name and address
- account number
- size, quantity, description of merchandise (colour), stock number if available, price

Allow a few days for delivery. If items are needed immediately, ask the stationery company to send them out "Rush".

On occasion, the stationery company is unable to fill a request and will mark items on packing slip with "b/o" for back ordered. Keep all packing slips in case a follow-up is required.

3. When supplies come in from a stationery company, be sure to match items listed on the packing slip to items requested to ensure that order was filled properly. If an item was ordered but not sent, and was not placed on back order, contact the stationery company immediately to notify it of the shortage.

HANDLING PETTY CASH

Petty cash is money that is commonly used to purchase small items for the business. These items may include:

- newspapers
- coffee supplies
- small donations to charity (flag and flower days)

When assuming responsibility for handling petty cash, it is necessary for the receptionist to keep a record of all money received or spent from the petty cash fund.

A basic petty cash record keeping system may look like this:

Petty Cash Record				
Date	Details	Credit	Debit	Balance
Sept. 25/89	Replace petty cash	25 00		25 00
Sept. 30/89	Weekly Examiner paper		50	24 50
Oct. 4/89	Coffee, sugar, milk		5 75	18 75
Oct. 6/89	Heart fund (receipt attached)		5 00	13 75

COFFEE SERVICE

A receptionist may be required to ensure that coffee is available to staff and visitors. Some offices employ a coffee service to provide the basic ingredients on a regular replacement basis. Other offices collect coffee money or provide coffee from the petty cash fund.

If your role as a receptionist includes making coffee, be sure to:

1. become familiar with the coffee maker. Know how to fill with water and how to replace filters and coffee.
2. make coffee according to instructions generally found with the coffee machine.
3. always use cold water when refilling the coffee maker.
4. provide visitors with choice of packaged cream and sugar, or ask how they like their coffee and prepare it accordingly.
5. clean up coffee area after use.
 - empty and clean coffee maker before making fresh coffee, and at end of the day
 - wash and sanitize cups and saucers
 - discard disposable cups
 - return all supplies to correct storage areas
 - wipe countertop or table
6. ensure adequate coffee, cream, sugar and stirrer supplies are maintained.

COURSE: PERSONAL AND PUBLIC SERVICES

**THEME: SERVICE THAT MAKES A
DIFFERENCE**

THEMATIC LEARNING ACTIVITIES

	<u>SUGGESTED GRADE</u>	<u>SUGGESTED TIME/HOURS</u>
A. Food for Thought	8	10-12
B. Introduction to Child Care	8	20-25
C. Personal Grooming	8-9	20-25
D. Safety and First Aid	8	10-15
E. Sewing Skills: It's Sew Easy	8	20-25
F. Baby-sitting: Certificate Course	9	20-25
G. Consumerism: Buying for Profit	9	10-12
H. Party Time	9	18-20
I. Service and Technology	9	6-8
J. Smile, You're a Tourist Attraction!	9	8-10

COURSE: PERSONAL AND PUBLIC SERVICES

THEME: SERVICE THAT MAKES A DIFFERENCE

OVERVIEW

The Personal and Public Services courses help students learn concepts and develop attitudes and skills that lead to improving the quality of their lives and the lives of others by focussing on the tasks and challenges that individuals and groups experience in the personal and public service industries. The Personal and Public Services component of the I.O.P. Practical Arts, Grades 8 and 9, is addressed in the theme "Service that Makes a Difference". In addition, learning activities included in this theme (e.g., "Personal Grooming" and "Smile, You're a Tourist Attraction!") are transferable to and usable in other courses.

The learning activities included in this theme provide the vehicle through which students develop an awareness of:

- the scope of the personal and public services industry
- career opportunities related to the personal and public services occupational cluster
- how the concepts, skills and attitudes acquired in the Personal and Public Services component of I.O.P. Practical Arts, Grades 8 and 9, are related to careers in other occupational clusters

Teachers are encouraged to develop additional learning activities to meet the needs and interests of their students and to maximize the potential to integrate community partnership activities into the curriculum

Opportunities exist within this theme for developing community partnerships:

- Community in the classroom
 - cook or chef
 - cosmetologist/barber/beautician/esthetologist
 - child care worker
 - laundry/dry cleaning worker
 - nurses' aide/day-care worker
 - waiter/waitress
 - caretaker/janitor/custodian
 - service station attendant
 - entrepreneurs; e.g., window cleaners, gardeners, couriers, carpet and upholstery cleaners
- Classroom in the community
 - Involve students in the selection and organization of learning activities within the community:
 - field trips: restaurants, hotels, motels, laundries, dry cleaners, day-care centres, etc.
 - mentorships: an employee is paired with a student to be a "friend" in the industry to the student
 - job shadowing: students spend time observing one or more employees in the workplace

THEMATIC OBJECTIVES

This theme will enable students to:

- develop an understanding of the scope of the personal and public services industry
- investigate the career opportunities in service occupations
- develop basic competencies in handling equipment, tools and supplies related to a variety of service occupations related to this theme

- recognize entrepreneurial opportunities within the personal and public services occupational cluster
- understand the meaning of "providing service" to others
- understand that knowledge learned and the skills and attitudes developed in the Personal and Public Service courses are transferable to other occupational clusters
- develop individual life skills (e.g., cooking, grooming, sewing)

PROCESS OBJECTIVES

Using the learning activities as instruments, students will begin to acquire the ability to:

- employ an appropriate problem-solving/decision-making model when planning a project or discussing issues
- participate actively in planning school and community activities
- communicate effectively and efficiently
- relate well to others
- organize and plan short and long range activities
- maintain a work area to predetermined standards
- produce work to at least minimum acceptable standards

ATTITUDE OBJECTIVES

Attitudes developed throughout the theme will enable students to:

- appreciate the meaning of "service"
- appreciate the importance and scope of the service industry in society
- appreciate the need for work standards, including safety and personal and public hygiene practices
- recognize the effect of technological change on the service industry
- respect the rights of others
- accept responsibility for individual behaviour and performance
- realize that learning is a lifelong process

INTEGRATION ACTIVITIES

Cooperative planning among teachers is essential to the success of the Integrated Occupational Program. Suggestions for integration are outlined in column three of the *I O P. Practical Arts, Grades 8 and 9 Program of Studies/Curriculum Guide* and additional suggestions are provided within each learning activity in this *Teacher Resource Manual*.

In schools where a different teacher is responsible for each of the three component courses that comprise the I O P. Practical Arts, Grades 8 and 9 (Business Education, Personal and Public Services, Technical/Occupational), transferable learning activities are suggested for integration between courses.

Teachers are encouraged to attempt these suggestions and to create new transferable integration activities suited to meeting the needs and interests of individual students at the local level.

THEME: Service that Makes a Difference
LEARNING ACTIVITY: Food for Thought
GRADE (suggested): 8
TIME (suggested): 10-12 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the factors that influence food choices
- recognize the basic food groups and nutrients that comprise a balanced meal
- apply basic principles of food safety and sanitation to practical situations

Skills:

- demonstrate proper food safety and sanitation procedures
- assemble a simple balanced meal

Attitudes:

- relate the basic principles of nutrition to personal eating behaviours
- appreciate the importance of safe and sanitary food handling practices

RESOURCES

Student Resources

Creative Living, Canadian ed., Don Mills, Ontario: Collier MacMillan Canada, Inc., 1985

Correlation of Learning Activity with Student Resource

Concepts, Skills and Attitudes	<i>Creative Living</i>
The Purpose of Food Nutrition Safety and Sanitation Food Eating	pp 246-252 pp 253-266 pp 290-310 pp 267-273

Teacher Resources

Creative Living, Teacher's Annotated Edition, Canadian ed., Don Mills, Ontario: Collier MacMillan Canada, Inc., 1985

Creative Living, Teacher's Resource Book, Canadian ed., Don Mills, Ontario: Collier MacMillan Canada, Inc., 1986.

Junior High Home Economics Teacher Resource Manual, Alberta Education, 1987.

Additional resources are available from:

Agriculture Canada
Alberta Agriculture
Health and Welfare Canada
Health Protection Branch, Alberta
Public Libraries.

TEACHER BACKGROUND INFORMATION

This "Food for Thought" learning activity introduces students to food, its purpose, preparation, and the danger of unsafe food handling practices.

This learning activity may be used as an introduction to a second learning activity related to the food and food service fields "We're Having a Party". The combination of the two learning activities will provide students with concepts, skills and attitudes that relate to a family of occupations within the tourism and hospitality occupational cluster and to food preparation, production and service occupations within each of the other seven occupational clusters.

THE PURPOSE OF FOOD

Food provides fuel for the body. We usually eat because we are hungry, however, some people eat to fulfil other needs. For example, some may eat when they are happy, some for pleasure, others when they are sad, and still others when they are bored and have nothing better to do.

Our eating habits are also determined by culture, by parents and by peers.

STUDENT ACTIVITIES

1. The following questions are contained in the student resource *Creative Living* (p. 245). Have students read the page and discuss the questions and the answers provided:
 - Which of the following factors influence food choices: taste? family? advertising? peer pressure? ethnic or religious origin? region?
 - The best way to lose weight is to skip breakfast. (True or False)
 - Snack foods are bad for you. (True or False)
 - Fast food restaurants serve only junk food. (True or False)
2. Have students brainstorm and identify their favourite foods and then categorize them into the four food groups:
 - Milk and Milk Products
 - Fruits and Vegetables
 - Breads and Cereals
 - Meat, Fish and Poultry
3. Have each student select their one favourite food and tell the class why it is their favourite.

4. Brainstorm to identify the foods that we usually describe as "junk foods" and/or "fast foods". Discuss the meaning of these terms.
5. Have students use a dictionary and other resources to define and describe the concept of "nutrition".

Community Partnerships

6. Invite students, parents and community members from different ethnic backgrounds to discuss and prepare traditional ethnic foods.
7. Invite a chef, cook or restaurant owner to discuss people's eating habits. Encourage students to interact with questions related to
 - what people eat most
 - when people eat most
 - where people do most of their eating

NUTRITION

Nutrition is the term used to describe the foods that we eat and the way the body uses the food that is eaten.

Nutrients provide the body with energy and help to build and repair body tissues and maintain body health. The major types of nutrients and food related materials are shown in Resource 1: "Nutrients: Their Purpose and Food Source".

STUDENT ACTIVITIES

1. Have students read *Creative Living*, pp. 253-259, and then, through discussion, brainstorming or individual writing assignments, answer the following questions:
 - What are the six types of nutrients? What does each do?
 - Why does the body need each of the six types to stay healthy?
 - What does it mean when we describe a person as being undernourished?
 - When a person is overweight, he or she may be described as fat. What is fat?
2. Individually, or in small groups, have students list the components of their favourite meal. The meal may be breakfast, lunch or dinner and should contain at least four different foods. Have students identify the nutrients contained in each of the four different foods and indicate nutrients that might be missing from their favourite meal.

Community Partnerships

3. Have students write a menu that provides a balanced meal, which is to cost no more than \$3.00 and then purchase and prepare the ingredients for that meal. (Encourage students to consider menu items that may be prepared, served and eaten with a minimum of cooking. Have students exchange the meal they prepared with one prepared by another class member OR invite other students, staff and community members to the meal and have guests contribute to a local charity; e.g., the food bank, United Way, etc.)
4. Invite a local home economist or hospital dietitian to speak to the class about balanced meals.
5. Visit a hospital kitchen or high school food preparation operation and observe and discuss how patients and students are encouraged to eat balanced meals.

SAFETY AND SANITATION IN THE FOOD INDUSTRY

Each year, thousands of people become ill from eating spoiled food. Food usually becomes spoiled when it contains a large number of bacteria. Getting completely rid of bacteria is almost impossible; they are always in the air we breathe, the food we eat and the liquids we drink. However, it is the responsibility of people in the food production, preparation, and service industries to ensure that the amount of bacteria contained in foodstuffs is controlled to a safe level.

Bacteria are controlled by:

- using a refrigerator or freezer to store perishable foods
- cooking perishable foods at temperatures high enough to destroy bacteria.

Bacteria is controlled by using proper procedures to:

- maintain a sanitary kitchen.

Storing Uncooked and Canned Foods

Foods that need to be stored in a refrigerator (e.g., vegetables) must be stored at a temperature below 4°C. Frozen foods must be stored at temperatures below -18°C.

Canned foods can be stored at room temperature; however, never use the contents of a can that appears to be bulging or leaking. Eating the contents from bulging or leaking cans can cause food poisoning.

Cooking Raw or Frozen Foods

Raw foods or frozen foods that need cooking such as meat or poultry must be cooked at a temperature above 60°C in order to destroy bacteria that may be in the foods.

Storing Cooked Foods

Cooked foods that are to be frozen must be kept refrigerated at a temperature below 4°C in order to prevent the growth and reproduction of bacteria.

The "Danger Zone" is the range of temperatures (4°C - 60°C) in which bacteria can grow and reproduce rapidly.

Maintaining a Sanitary Kitchen

Kitchen sanitation involves keeping food production, preparation and service areas clean and free from bacteria. In Alberta, the Provincial Board of Health regulates the food industry. Among its regulations:

Regulation 4.4.1

No person infected with any communicable disease shall be engaged, employed or serve in any work, occupation or employment which requires or occasions the handling of any foods, or the handling of any dish or other article used in the preparation or serving of food.

Regulation 4.4.6 (1)

All employees or other persons engaged and working in or about premises where the manufacturing, preparing, making, handling, care or sale of any food for human consumption is carried on shall at all times be clean in their habits and mode of working and in their persons and shall wear clean, washable clothing

Regulation 4.4.6 (3)

Any person engaged in working in the preparation of food for human consumption shall:

- (a) keep his/her hair cut to a length where it will not require control, or
- (b) wear appropriate head coverings or a hair net such as to effectively control the hair while engaged in working in the preparation of food.

The provincial government has the right to send officers to inspect any food preparation, production and service operation and, if it does not meet the required level of cleanliness, close the operation. A restaurant, for example, may be temporarily closed if the kitchen is found to be below the provincial standards of cleanliness. The restaurant will be allowed to reopen only when it shows that the kitchen and the food handlers are meeting provincial standards.

Note 1: Use Resource 2: "Safe Food Handling" and Resource 3: "Recipe for Food Safety" to reinforce the basic principles of safe food handling practices.

Note 2: The "Safety and Sanitation Checklists", pages 68-71 in the *Junior High Home Economics Teacher Resource Manual*, Alberta Education, 1987, may be used to guide instruction and evaluate the students' learning in the areas of safe and sanitary food handling practices.

STUDENT ACTIVITIES

1. Have students make a chart to show the correct storage procedures and storage temperatures for the following food products:
 - butter
 - apples
 - cold cuts
 - bread
 - cereals
 - milk
 - uncooked meat
 - soup
 - canned fruit
 - nuts.
2. Have students become familiar with the lab tools and equipment by sanitizing the lab. Demonstrate and have them model proper procedures for handling and sanitizing:
 - sinks and faucets
 - counter tops
 - floors
 - electric and gas ranges
 - pots and pans
 - cutlery
 - glassware
 - dishes
 - serving implements
 - wood products; e.g., spatulas, salad bowls, cutting boards.
3. Demonstrate and have students model proper storage procedures for glassware, dinnerware, tableware, pots and pans and other utensils

4. Have students use the dictionary or other resources to identify and describe the following tools and equipment commonly found at home or in a commercial food operation:
 - glassware
 - dinnerware
 - tableware
 - serving implements.
5. Have students read *Creative Living*, Chapter 43, pp. 305-310, and discuss or brainstorm the questions at the end of the chapter.
6. Use Resource 4 "Pre-Test: Safe Food Handling" as a quiz or as topics for class discussion and decision making. (Resource 5: "Answers" provides a key for this quiz.)
7. Have students reinforce and review their learning, by using:
 - Resource 6: "Food Safety Word Search" (Resource 7: "Solution")
 - Resource 8: "Food Safety Crossword Puzzle" (Resource 9: "Solution").
8. Have students work in small groups and set up experiments that will enable them to examine the consequences of leaving various foods open to the environment. Have them record the details of the experiment – foods used, time exposed, smell and appearance at different times, conclusions.

Community Partnerships

9. Invite one or more parents to discuss and demonstrate safety and sanitary practices used in preparing and storing food in the home.
10. Invite a commercial chef, cook, restaurant owner and/or a public health officer to discuss the importance of safety and sanitation in the food industry.
11. Have students obtain food safety and sanitation publications from the school or community library or a public health office. These may be used as posted reminders about food safety and sanitation in the lab, as topics for discussion and as a basis for individual research activities. For example, Health and Welfare Canada, publishes one or two-page monographs on the following topics:

Cat. No. H49-15/8-1985E	"Perish the Thought: Questions and Answers on Food Safety"
Cat. No. H49-15/3-1984	"Food Safety – On the Run"
Cat. No. H49-15/2-1983E	"Canned Foods: Keeping the Lid on Contamination"

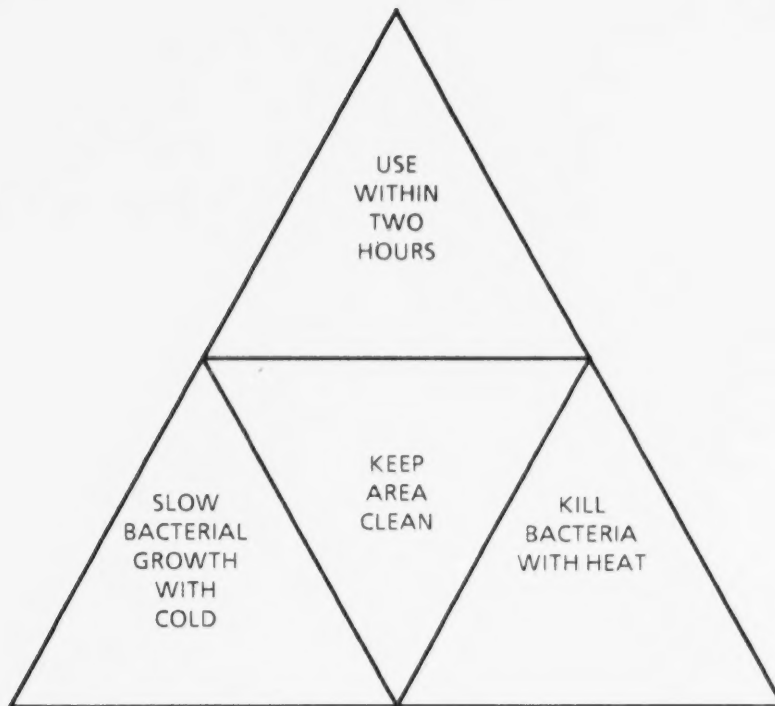
NUTRIENTS: THEIR PURPOSE AND FOOD SOURCE

Nutrients	Purposes	Food Sources
Carbohydrates	Provide the body with energy.	Starches: e.g., rice, bread, pasta, grain products.
Fats	Store energy and vitamins.	Animal fats: e.g., butter, milk, meat Vegetable oils: e.g., corn oil, sunflower oil.
Proteins	Build and repair body tissues e.g., hair, nails, skin	Animal products: e.g., eggs, meat, fish, milk, chicken, turkey Vegetable products: e.g., brans, nuts, rice, whole grains
Vitamins	Help body stay healthy	A variety of vitamins are found in each of the four food groups.
Minerals	Help body stay healthy	e.g., Liver/spinach - iron milk/dairy products - calcium
<u>Other</u>		
Fibre (Roughage)	Fibre is not a nutrient, however, fibre helps to maintain health of body's digestive system.	Fruits, vegetables, bread, seeds
Water	Helps move food through body and maintains a steady body temperature.	Tea, coffee, pop, etc.

SAFE FOOD HANDLING PRINCIPLES AND PRACTICES	
PRINCIPLES	PRACTICES
1. KEEP AREA CLEAN (keep foods free of sources of contamination)	• Use sanitary practices: - wash hands, work surfaces and dishes with hot, soapy water - secure hair - do not taste with fingers or utensils used in preparation - do not cough or sneeze into food; cover cuts - do not handle parts of dishes or utensils to be placed in mouth - handle food with clean utensils • Do not mix raw, potentially unsafe foods with ready-to-eat foods • Use separate cutting boards for meats and produce to avoid cross-contamination • Keep work area free of flies and other insects • Do not use foodstuffs packaged in bulging, leaking, dented or rusted cans
2. KILL BACTERIA WITH HEAT	• Use a meat thermometer to ensure thorough cooking of meat and poultry • Cook stuffing in a separate container • Hold cooked foods at an internal temperature of at least 60°C if not served immediately • Follow safe canning and preserving procedures
3. SLOW BACTERIAL GROWTH WITH COLD	• Refrigerate or freeze leftovers immediately after serving • Store perishables at or below proper refrigeration (4°C) or freezing (-18°C) temperatures • Follow storage instructions on labels of packaged food • Remove and refrigerate stuffing in a separate container • Cool bulk quantities of food quickly by dividing into small portions before refrigerating
4. USE WITHIN TWO HOURS	• Do not leave potentially unsafe foods out at room temperature

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RECIPE FOR FOOD SAFETY



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PRE-TEST

SAFE FOOD HANDLING

Read each statement carefully and record whether or not you agree or disagree by checking (✓) the appropriate column.

	Agree	Disagree
1. Some food poisoning symptoms are nausea, vomiting, diarrhea and cramps.	_____	_____
2. Food poisoning symptoms do not usually appear until 12-24 hours after eating a contaminated food.	_____	_____
3. Given the right growing conditions, bacteria multiply very rapidly.	_____	_____
4. When reheating foods, make sure to heat them piping hot to kill bacteria.	_____	_____
5. Wash your hands in hot, soapy water before touching food.	_____	_____
6. It's safe to taste the contents of a can that smells rancid or abnormal because a little bit won't hurt.	_____	_____
7. Food poisoning cannot be prevented by handling foods with care.	_____	_____
8. Bacterial growth will be kept in check if foods are kept piping hot until serving, or are cooled rapidly before storage.	_____	_____
9. Cross-contamination can occur if the juices of a thawing chicken, containing food-poisoning bacteria, drip onto a food that is already cooked and ready to serve.	_____	_____

	Agree	Disagree
10. Food from bulging, leaking cans is dangerous.	_____	_____
11. Cross-contamination refers to what happens when bacteria in one food are spread to another food.	_____	_____
12. Food that has mould growing on it is safe to eat if you remove the mouldy layer.	_____	_____
13. Potentially unsafe foods should be used within six hours if left at room temperature.	_____	_____
14. If a food has caused illness, consult your doctor and report the incident right away.	_____	_____
15. The local public health unit is the place to report a suspected case of food poisoning.	_____	_____
16. Frozen foods are best thawed in the refrigerator rather than at room temperature.	_____	_____
17. A large volume of potentially unsafe food will take a long time to cool down, even in the refrigerator, allowing bacteria to multiply quickly.	_____	_____
18. Bacteria grow more slowly with higher temperatures and more quickly with cooler temperatures.	_____	_____
19. If a work area is kept very clean, there is less danger of transferring bacteria from utensils (for example, to a food or from one food to another).	_____	_____

	Agree	Disagree
20. Pack potentially unsafe foods with ice, cold packs or even cold drinks to keep them safe.	_____	_____
21. Food always tastes or smells bad when it has been contaminated.	_____	_____
22. Food from a can that spurts, appears bubbly or mouldy is likely to be dangerous.	_____	_____
23. Mayonnaise causes food poisoning.	_____	_____
24. If a canned food has gone bad, boiling the contents a few minutes will destroy all of the poisonous substance.	_____	_____
25. Anything you touch is a resting area for bacteria – hands, water, faucet, apron, towel, utensils, door handles.	_____	_____
26. Food from rusty or badly dented cans may be contaminated and cause food poisoning.	_____	_____
27. A moist, warm environment is a perfect place for bacteria to grow.	_____	_____
28. Keeping cold foods refrigerated will slow bacteria growth.	_____	_____
29. Freezing kills bacteria.	_____	_____
30. Bacteria can be transferred from one food to another.	_____	_____
31. Food poisoning usually results from eating foods containing large numbers of harmful bacteria.	_____	_____
32. Most bacteria are harmless, however, some are dangerous	_____	_____

	Agree	Disagree
33. Bacteria need warmth and moisture to grow.	_____	_____
34. The problem with thawing frozen foods at room temperature is that the surface of the food can reach the danger zone before the inside is thawed.	_____	_____
35. Danger zone temperatures are between 4°C (40°F) and 60°C (140°F).	_____	_____
36. Dangerous bacteria can be transferred from utensils and cutting boards to food.	_____	_____
37. Refrigeration kills bacteria.	_____	_____
38. Bacteria can be killed by cooking foods at a high enough temperature.	_____	_____

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ANSWERS

PRE-TEST

SAFE FOOD HANDLING

Read each statement carefully and record whether or not you agree or disagree by checking (✓) the appropriate column.

Statement	Agree	Disagree
1. Some food poisoning symptoms are nausea, vomiting, diarrhea and cramps.	<u>✓</u>	<u> </u>
2. Food poisoning symptoms do not usually appear until 12-24 hours after eating a contaminated food.	<u> </u>	<u>✓</u>
3. Given the right growing conditions, bacteria multiply very rapidly.	<u>✓</u>	<u> </u>
4. When reheating foods, make sure to heat them piping hot to kill bacteria.	<u>✓</u>	<u> </u>
5. Wash your hands in hot, soapy water before touching food.	<u>✓</u>	<u> </u>
6. It's safe to taste the contents of a can that smells rancid or abnormal because a little bit won't hurt.	<u> </u>	<u>✓</u>
7. Food poisoning cannot be prevented by handling foods with care.	<u> </u>	<u>✓</u>
8. Bacterial growth will be kept in check if foods are kept piping hot until serving or are cooled rapidly before storage.	<u>✓</u>	<u> </u>
9. Cross-contamination can occur if the juices of a thawing chicken, containing food-poisoning bacteria, drip onto a food that is already cooked and ready to serve.	<u>✓</u>	<u> </u>

	Agree	Disagree
10. Food from bulging, leaking cans is dangerous.	☒	☐
11. Cross-contamination refers to what happens when bacteria in one food are spread to another food.	☒	☐
12. Food that has mould growing on it is safe to eat if you remove the mouldy layer.	☐	☒
13. Potentially unsafe foods should be used within six hours if left at room temperature.	☐	☒
14. If a food has caused illness, consult your doctor and report the incident right away.	☒	☐
15. The local public health unit is the place to report a suspected case of food poisoning.	☒	☐
16. Frozen foods are best thawed in the refrigerator rather than at room temperature.	☒	☐
17. A large volume of potentially unsafe food will take a long time to cool down, even in the refrigerator, allowing bacteria to multiply quickly.	☒	☐
18. Bacteria grow more slowly with higher temperatures, and more quickly with cooler temperatures.	☐	☒
19. If a work area is kept very clean, there is less danger of transferring bacteria from utensils (for example, to a food or from one food to another).	☒	☐
20. Pack potentially unsafe foods with ice, cold packs or even cold drinks to keep them safe.	☒	☐

	Agree	Disagree
21. Food always tastes or smells bad when it has been contaminated.	☐	☒
22. Food from a can that spurts, appears bubbly or mouldy is likely to be dangerous.	☒	☐
23. Mayonnaise causes food poisoning.	☐	☒
24. If a canned food has gone bad, boiling the contents a few minutes will destroy all of the poisonous substance.	☐	☒
25. Anything you touch is a resting area for bacteria - hands, water, faucet, apron, towel, utensils, door handles.	☒	☐
26. Food from rusty or badly dented cans may be contaminated and cause food poisoning.	☒	☐
27. A moist, warm environment is a perfect place for bacteria to grow.	☒	☐
28. Keeping cold foods refrigerated will slow bacteria growth.	☒	☐
29. Freezing kills bacteria.	☐	☒
30. Bacteria can be transferred from one food to another.	☒	☐
31. Food poisoning usually results from eating foods containing large numbers of harmful bacteria.	☒	☐
32. Most bacteria are harmless, however, some are dangerous.	☒	☐
33. Bacteria need warmth and moisture to grow.	☒	☐

Agree

Disagree

34. The problem with thawing frozen foods at room temperature is that the surface of the food can reach the danger zone before the inside is thawed.
35. Danger zone temperatures are between 4°C (40°F) and 60°C (140°F).
36. Dangerous bacteria can be transferred from utensils and cutting boards to food.
37. Refrigeration kills bacteria.
38. Bacteria can be killed by cooking foods at a high enough temperature.

☒☒☒☐☒☐☐☒☐

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FOOD SAFETY WORD SEARCH

G Z X Q W V T R R D B R Q K M R T I O K
 N V N Z S N O I T A R E G I R F E R Q Y
 X A G K S S E N L L I L V J N U G P N D
 R X N M R G T N Y U M V X O U N T P I J
 Z F D F X O Y T E F A S F C I H Q A S M
 D H Q I H B D E E E L K O N U S R I D N
 E G N I Z E E N S L R N O F Y R W H A E
 W K G N I L D N A H T S H M H Q A C R J
 G D O F S S A E H A I T P E A R Y U H A
 N X F X Q N T N M O H T A I M T T T T S
 W S G F S M Q I P E O X R F S S W N O A
 Z N W H K B N D R M T E U U I O O R P L
 G I X Q Q A O M S N U L R O R I Y E A M
 O N T A T O O T E C H D M G T S J G X O
 M V I I F M I L A Y H Z L A F T Z N Z N
 S T O Z E M D B G Y S T T R Y W O A H E
 X N A T E L I I I P A I H L K P P D Z L
 Q C E E O E E T O Z N Z U Y V P G F S L
 A R M C H N R G B A Y R S O E D H L Z A
 I J X T E R Z F S P U T D R F H K M W G

Find these hidden words in the above puzzle.

BACTERIA	FREEZING	ILLNESS	SALMONELLA
COLD	HANDLING	MOISTURE	SANITATION
CONTAMINATION	HARMFUL	REFRIGERATION	SNEEZING
DANGER	HEAT	GROWTH	SYMPTOMS
DIARRHEA	HOT	RUSTY CAN	THERMOMETER
FOOD POISONING	HYGIENE	SAFETY	TIME

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SOLUTION

FOOD SAFETY WORD SEARCH

•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	N	O	I	T	A	R	E	G	I	R	F	E	R	•	•
•	•	•	•	S	S	E	N	L	L	I	•	•	•	•	G	•	•	D	
•	•	•	•	•	•	T	•	•	•	•	•	•	•	N	•	•	I	•	
•	•	•	•	•	O	Y	T	E	F	A	S	•	C	I	•	•	A	•	
•	•	•	•	H	•	•	•	•	•	•	•	O	N	•	S	R	•	N	
•	G	N	I	Z	E	E	N	S	•	•	N	O	•	Y	R	•	H	A	
•	•	G	N	I	L	D	N	A	H	T	S	•	M	H	•	A	C	R	
•	•	•	•	•	•	•	•	•	A	I	T	P	E	A	R	Y	U	H	
•	•	•	•	•	•	•	•	M	O	H	T	A	I	M	T	T	T	•	
•	•	•	•	•	•	•	I	P	E	O	•	R	F	S	S	W	N	•	
•	•	•	•	•	•	N	D	R	M	T	E	U	U	I	O	O	R	•	
G	•	•	•	•	A	O	M	S	•	•	L	R	O	R	I	•	E	•	
•	N	•	•	T	O	O	T	•	C	H	•	M	G	T	•	•	G	•	
•	•	I	I	F	M	I	•	A	Y	•	•	•	A	•	•	•	N	•	
•	T	O	Z	E	M	D	B	G	•	•	•	T	•	•	•	•	A	•	
•	N	A	T	E	L	•	I	•	•	•	I	•	•	•	•	•	D	•	
•	•	E	E	O	E	E	•	•	•	N	•	•	•	•	•	•	•	•	
•	R	•	C	H	N	R	•	•	A	•	•	•	•	•	•	•	•	A	
•	•	•	•	E	•	•	F	S	•	•	•	•	•	•	•	•	•	•	

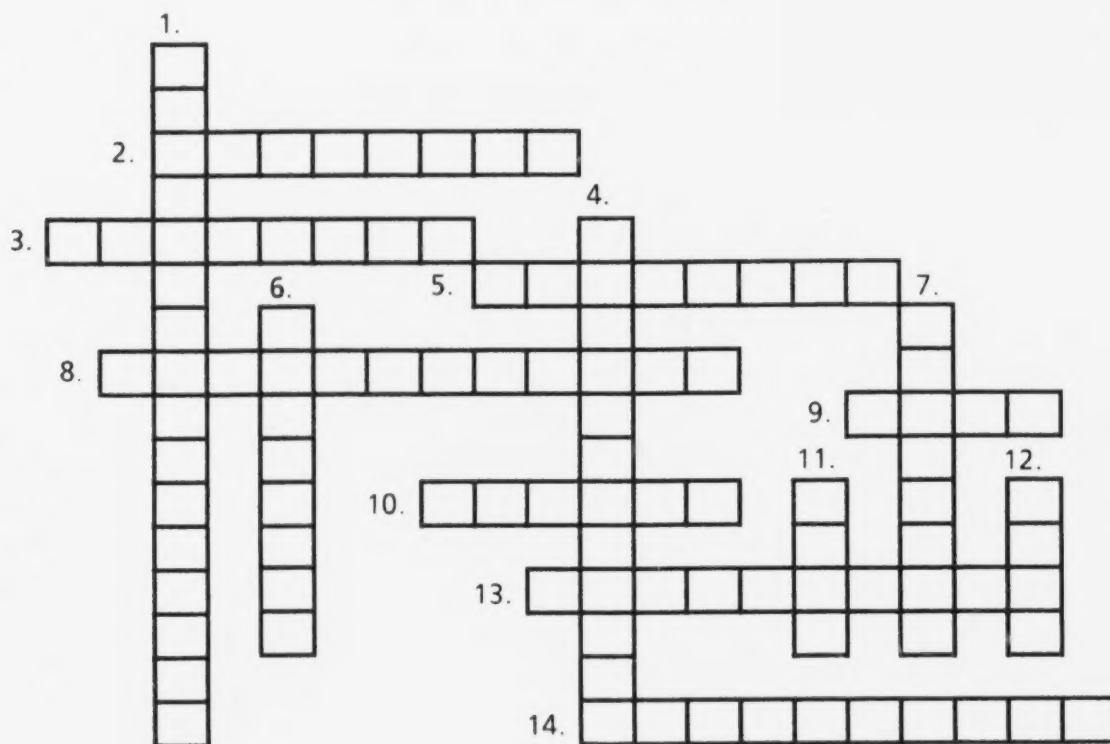
FOOD SAFETY CROSSWORD PUZZLE

ACROSS

2. Tiny living organisms the eye cannot see without a microscope (8)
3. A condition that favours the growth of bacteria (8)
5. Do not leave foods any longer than this at room temperature (3, 5)
8. The best place to thaw frozen foods (12)
9. What refrigeration does to the growth of bacteria (4)
10. Just how hot leftovers should be before serving (6)
13. One of the bacteria that contaminate food and cause illness (10)
14. Foods kept at room temperature fall within this temperature range (6, 4)

DOWN

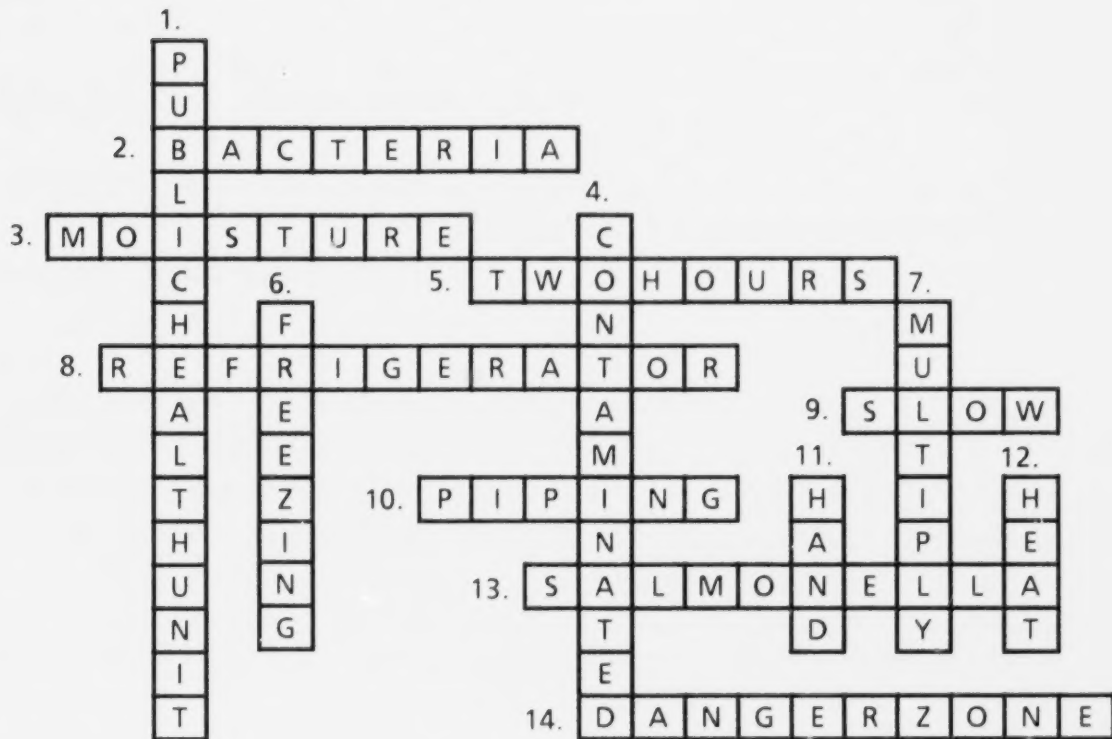
1. The place to report suspected cases of food poisoning (5, 6, 4)
4. State of food containing harmful substances (12)
6. A method of food preservation which slows bacterial growth (9)
7. What bacteria do when they are given food (8)
11. A part of a person's body that may transfer bacteria to food (4)
12. What kills bacteria in canning and pasteurization? (4)



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SOLUTION

FOOD SAFETY CROSSWORD PUZZLE



THEME: Service that Makes a Difference
LEARNING ACTIVITY: Introduction to Child Care
GRADE (suggested): 8
TIME (suggested): 20-25 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the basic principles of child care
- recognize the basic duties of a child care worker

Skills:

- apply the basic principles of child care
- demonstrate responsible behaviour in dealing with parents and the child when caring for a child

Attitudes:

- display empathy and concern for the needs of children
- appreciate the rights and responsibilities of a child care worker

RESOURCES

Student Resources

Creative Living, Canadian ed., Don Mills, Ontario: Collier MacMillan Canada, Inc., 1985

Correlation of Learning Activity with Student Resource

Concepts, Skills and Attitudes	<i>Creative Living</i>
Child development	pp. 130-135
Child care and safety	pp. 136-141
Baby-sitting	pp. 142-147

Teacher Resources

A classroom or other area that facilitates the teaching of practical child care. The facility should have a floor area that is easily sanitized, children's washroom facilities, and sink with hot and cold faucets.

Supply items may include:

- children's toys, books, games, climbers
- cribs, cots, collapsible beds
- blankets

- refrigerator
- small utensils – saucepans, kettle, bottle warmers
- high chairs and other children furniture
- microwave oven (or access to kitchen facilities)
- toiletry supplies – tissues, talc, diapers
- record book – to record names, addresses, telephone numbers of children being cared for.

The Alberta Safety Council stores films related to its Baby-sitters Safety Course at the University of Alberta. These films should be ordered three weeks in advance from:

Educational Media Division
Faculty of Extension
University of Alberta
Rm. 132, Corbett Hall
Edmonton, Alberta
T6G 2G4
ph. 492-5039 and 492-5040

Note: the University of Alberta charges a minimum handling fee per film per day

A variety of other related resources are available from:

ACCESS VIDEOTAPES
Media Resource Centre
ACCESS ALBERTA
6005 - 103 Street
Edmonton, Alberta

St. John Ambulance
Canadian Red Cross Society

TEACHER BACKGROUND INFORMATION

The two learning activities "Introduction to Child Care" and "Baby-sitting: Certificate Course" are designed to provide students with the concepts, skills and attitudes necessary to provide basic child care services in:

- a supervised school setting
- a baby-sitting assignment
- a day care centre.

While the introductory learning activity is designated Grade 8 and the certificate learning activity is designated Grade 9, teachers may decide to offer the two activities sequentially in one or other of the two years.

At the conclusion of both learning activities, students should have received approximately fifty hours of instruction and guided practice in child care and baby-sitting and should be able to demonstrate their competency by qualifying for a certificate in baby-sitting.

Both learning activities were developed in part from the Alberta Safety Council's "Baby-sitters Safety Course" and teachers may decide to register students as participants in a child care/baby-sitting course with the Alberta Safety Council. Satisfactory completion of both learning activities should enable students to qualify for a graduation certificate provided by the Alberta Safety Council.

Details of how to register students and other requirements are included in the "Baby-sitting: Certificate Course" learning activity.

This learning activity can best be taught by:

- a. combining classroom instruction with the operation of an in-school, short-term child care centre for parents visiting the school or for community members wanting to involve their children in a structured and supervised child care environment.
- b. combining classroom instruction with on-the-job experience in a local child care centre through job shadowing and mentorship field experiences.
- c. combining (a) and (b)
- d. inviting teachers/colleagues to bring their pre-schoolers to school for part of a school day/week
- e. having students bring in younger siblings.

CHILD CARE

Caring for children requires patience and understanding. The good child care worker has the following qualities:

- is friendly and considerate
- enjoys and understands children
- is willing to learn more about how children develop and learn
- is gentle but firm
- has good observational skills
- allows a child to do things for himself or herself when the child is able and it is safe to do so
- is able to respond correctly to emergency situations
- is able to relate well with adults as well as children.

In addition, the good child care worker demonstrates the ability to:

- work hard
- accept people as they are
- follow directions
- respect the property of others.

STUDENT ACTIVITIES

1. Have students discuss and record the range of career opportunities including entrepreneurial opportunities available to a person with child care experience and qualifications.

Community Partnerships

2. Invite a child care worker from a local day care centre to discuss the nature of a child care worker's job.
3. Organize field trips to local day care operations and, where possible, to a hospital that has a pediatric wing.

BABY-SITTING

Baby-sitting is one of the jobs available to a child care worker. Baby-sitting can offer part time or full-time employment as either a resident baby-sitter in a single household, as a baby-sitter to a group of children in one's own home, or in a nursery or day care.

Good baby-sitters:

- ARE RELIABLE – They can be trusted to take the full responsibilities that are part of being a baby-sitter. They will honour the privacy of the employer's home and will behave in a responsible manner.
- ARE PUNCTUAL – They will arrive on time and make sure that they notify the employer well in advance if a situation arises which makes it impossible to arrive at the appointed time. If an emergency arises which prevents them from baby-sitting on the appointed day, they give the employer enough notification so that they can arrange for an alternative baby-sitter.
- ENJOY BEING WITH CHILDREN – Baby-sitters should enjoy children and enjoy the kinds of activities involved with keeping children entertained.
- ARE CLEAN AND NEAT – Baby-sitters should take pride in their personal appearance. They should respect the employer's home and ensure that they keep it in a neat and tidy condition. They should make sure that toys are picked up and dishes put away in the appropriate places when they have finished with them.
- ENCOURAGE SAFETY – Baby-sitters should be able to perform basic first aid and know what to do in an emergency.
- SET A GOOD EXAMPLE FOR THE CHILDREN – Baby-sitters provide a role model for the children in their charge. They should make sure that they use appropriate language, refrain from doing things that provide negative images for the children (e.g., smoking when with children) and not allow the children to participate in activities of which the parents would disapprove (e.g., "food fights").
- ARE IN GOOD HEALTH – Baby-sitters must not take a job if they are suffering from any contagious disease which may be passed on to the children. If they do have an illness, they should notify the employer of their condition as soon as possible to allow the employer to find an alternative sitter. They should also refrain from taking a baby-sitting job where the children are suffering from a contagious disease that may be passed on to others through the baby-sitter.
- ARE POLITE AND WELL-MANNERED – They provide role models for children, assuring parents of their personal good moral conduct.
- ARE BUSINESS-LIKE – They should make sure that all instructions are clearly listed and explained and that these instructions are followed. They should make sure that they have obtained all the necessary information to do the job safely and correctly; i.e., phone numbers, addresses, etc., of persons or agencies to contact in the event of an emergency.
- PERFORM THE JOB PROFICIENTLY – They should make sure that they know how to handle the children and tasks under their responsibilities. All baby-sitters should know the correct child care and safety procedures required, as well as specific instructions dealing with the children under their care.

STUDENT ACTIVITIES

1. Have students recall various baby-sitters they have had. What was special about those baby-sitters? What qualities did they possess that keeps them in memory?
2. Working in small groups, have students identify the three most important qualities of a good baby-sitter and give reasons for their choices. Have each group of students present and discuss their choices with the rest of the class.

Integration Activity

3. a. Brainstorm to identify the meanings of the terms "RIGHTS" and "RESPONSIBILITIES". Use the dictionary to validate responses.
- b. Join with a social studies class in a discussion on the two terms and their implication to children and to child care workers.

CHILD CARE

In order to work as a full-time child care worker or as a part-time baby-sitter, it is important to be able to recognize and respond to certain types of child behaviour, such as why a baby may cry, changing a baby's diaper, how and what children eat, what to do if a young child engages in a temper tantrum, etc.

Crying

Babies will cry for a variety of reasons, including:

- HUNGER – The baby wishes to be fed.
- GAS PAINS – The baby is having pain due to an accumulation of gas in the stomach. A simple "burping" will probably relieve the problem.
- DISCOMFORT – They may have something irritating them, such as a safety pin, clothes which are too tight, a diaper which needs changing, or they may be too hot or cold.
- LACK OF ATTENTION – The baby may require holding for a short period of time.
- ILLNESS OR FEVER – If the baby is abnormally warm or has a skin rash, she/he may be suffering from some ailment. If this is the case, it is best to notify the parents or an emergency contact.

Feeding

A child worker should be able to correctly:

- feed babies and older children
- respond to a child's temper tantrum during feeding
- change diapers before and after feeding

Bottle Feeding. Before accepting charge of a baby, a child care worker should obtain information about what, when and how the child is fed; e.g.,

- bottle formula
- quantity
- feeding time
- special instructions

When feeding a baby, make sure the baby is held in one arm leaving the other free for holding the bottle. NEVER lay the baby down and prop up a bottle beside it. The formula may flow too quickly for the baby to swallow, or the baby may regurgitate and choke. After a period of feeding, "burp" the baby to prevent gas pain.

STUDENT ACTIVITIES

1. Have students use a doll to illustrate the correct method of holding and feeding a baby.
2. Discuss: "What should be done if the baby does not want to feed?"

FEEDING OLDER CHILDREN

If caring for a child during a regular meal time, the child should be fed. The child care worker should consult with the child's parents in order to:

- **KNOW WHAT THE CHILD EATS** – Become familiar with the child's likes and dislikes, food allergies, etc.
- **KNOW HOW TO PREPARE THE FOOD** – If there are special preparation instructions, these should be obtained from the parents.
- **KNOW HOW TO USE THE APPROPRIATE APPLIANCES** – Obtain instructions on how to use such appliances as the microwave, oven, range, dishwasher, etc., before the parents leave.
- **KNOW WHERE DISHES AND UTENSILS ARE LOCATED** – Find out from the employer which dishes and utensils are to be used.
- **KEEP CHILDREN AWAY FROM THE COOKING AREA** – Children should not be allowed near hot stoves while the meal is being prepared.
- **KEEP THE COOKING AREA SAFE** – Turn pot handles inwards on the stove so that children can't pull on them. Don't allow appliance cords to hang down where children can grab them. Avoid scalding by keeping boiling pots at the rear of the stove and lifting lids away from self and children.
- **USE GAS STOVES SAFELY** – Instructions for the use of gas stoves should be obtained from the employer. If the pilot light goes out, know the correct procedure to follow. If a gas leak develops, take the children out of the home to a neighbour and call the gas company.
- **CLEAN SPILLS AND BROKEN GLASS IMMEDIATELY** – If something is spilled, it should be wiped up immediately so the baby-sitter or the children will not fall and hurt themselves. Broken glass will leave small particles or shards that can be picked up with a damp paper towel after the floor has been swept. **Never use food from a container that has been chipped or broken.** Whenever possible, use unbreakable cups/dishes for young children.
- **FOLLOW SAFE TABLE PROCEDURES** – Hot foods and sharp utensils should be placed in the centre of the table, out of reach of the children.
- **USE HIGH-CHAIRS PROPERLY** – Do not leave child unattended in highchair. Make sure the safety harness is properly attached for younger children. If a harness is not available, use a towel or other soft cloth material to hold the baby in the chair.
- **LEFTOVERS** – Any leftover food should be properly wrapped and placed in the refrigerator or freezer immediately to prevent spoilage.
- **CLEANING UP** – After the meal, the dishes should be cleaned up, washed and put away. If correct locations are not known, the dishes should be carefully stacked on a counter out of reach of the children.
- **FOOD SAFETY** – Cut food into bite size pieces (cut hot dogs lengthwise) and do not give the child popcorn or nuts.

STUDENT ACTIVITIES

1. Have students practise preparing formula and preparing simple, nutritious meals.
2. Have students define "NUTRITION" and research the foods that are contained in each of the four main food groups.

Community Partnerships

3. Invite a parent or a nurse to discuss a child's nutritional needs.

CHANGING A BABY

Always check with parents about the type of diapers to be used. If cloth diapers are used, make sure that the correct folded shape is used, and that care is exercised when pinning the diaper in place. When disposable diapers are used, make sure that the new diaper is properly attached and that the old one is disposed of in the proper manner. Follow the teacher's, parent's or supervisor's instructions for disposing of a soiled diaper. Check with parents about treatment when the baby has a diaper rash.

STUDENT ACTIVITIES

1. Supply a doll and practice materials for changing diapers and allow each of the students to practise the diaper changing procedure.
2. Discuss the advantages and disadvantages of using cloth as opposed to disposable diapers.

Community Partnerships

3. Invite a new mother or father to discuss how she or he handles the baby.

HANDLING TEMPER TANTRUMS

Young children will sometimes engage in a temper tantrum which may consist of:

- screaming
- throwing themselves on the floor
- holding their breath
- banging their head on the floor

When dealing with a temper tantrum:

- move sharp objects, toys, etc., out of the way
- move tables with sharp corners away from the child
- take any objects out of their hands
- talk quietly and calmly to the child and try to reason with him or her
- don't worry about the "breath-holding" - a child will start breathing again when the body demands oxygen
- don't yell at the child
- don't strike the child
- don't try to physically restrain the child.

STUDENT ACTIVITIES

1. Discuss: "What should a child care worker do when a child has a temper tantrum".
2. Invite students with a young brother or sister to relate how temper tantrums are handled in their homes.

Community Partnerships

3. Invite a child care worker, nurse or pediatric doctor to discuss how to handle a child's temper tantrum.

PLAYING

Playing Outside. Supervised play in a safe, outside area is good for most children; however, children should not be allowed to play outside without parental permission and supervision. The child care worker should never:

- let children out of sight or hearing
- leave children unattended
- let children play:
 - near railway tracks
 - near ditches or ponds
 - on unsafe playground equipment
 - on an object from which they might fall and injure themselves
 - near fires
 - with strange pets or animals
 - with sharp objects
 - in a roadway used by cars and other vehicles
 - near excavations
 - with unsafe toys (particularly ones with small parts)
 - on steps or window sills
 - on rock or dirt piles

If you must cross a busy street, hold children by the hand; don't let them cross unattended

Playing Games. Children like to play active games and this should be encouraged unless there is a danger of a child becoming hurt or hurting another child.

When baby-sitting, do not allow the child to become too active just prior to bedtime. About one hour before bedtime, play may include reading or being read a story, playing a board game, or colouring.

STUDENT ACTIVITIES

1. Discuss:
 - "The favourite toys that students had and the games and activities they enjoyed when they were babies (6-18 months), toddlers (2-4 years), young children (5-7 years) "
 - "The best games, toys and activities for babies, toddlers, and young children are . . . Why?"
 - "How music and music boxes can affect children. "

Community Partnerships

2. Arrange a visit to a local toy store or, if possible, a store that specializes in educational toys for children of different ages. Have students identify and record three toys, games or activities that are recommended for children of various age groups. The following chart may be used for this activity.

Age Group	Toy, Game or Activity
6-18 months	
2-4 years	
5-7 years	

BEHAVIOUR STAGES OF CHILDREN – 18 MONTHS TO 10 YEARS

The chart below indicates some of the more common behaviours of children at different ages; however, children differ. It is normal for individual children to demonstrate these and other behaviours at different ages.

18 MONTHS

1. Enjoys doing the opposite.
2. "No" is the chief word.
3. Doesn't know how to share.
4. Doesn't like to wait.
5. Is easily frustrated.

2 YEARS

1. Runs and climbs more surely.
2. Surer of himself in speaking.
3. Likes to please others sometimes.
4. Has still not learned to share.
5. Is loving and affectionate.

2½ YEARS

1. Wants to make all the decisions.
2. Has difficulty making a choice.
3. Likes to share.
4. Is cooperative.
5. Likes to make friends.
6. Loves new words.

3 YEARS

1. Loves to conform.
2. Has difficulty making a choice.
3. Likes to share.
4. Is cooperative.
5. Likes to make friends.
6. Loves new words.

3½ YEARS

1. Stumbles, falls.
2. Has fear of heights.
3. Has emotional problems.
4. Demands attention.
5. Is often jealous.

4 YEARS

1. Likes to hit, kick, run away.
2. Breaks things.
3. Has a loud, silly laugh.
4. Loves to defy.
5. Swaggers, swears, boasts.

4½ YEARS

1. Likes to discuss.
2. Interested in details.
3. Play is less wild.

5 YEARS

1. Is an "angel".
2. Reliable and stable.
3. Not too demanding.
4. Is often calm.

6 YEARS

1. Loves one minute - hates the next.
2. Wants to be centre of the world.
3. Very demanding of others.
4. Loves new experiences.
5. Has difficulty choosing.

7 YEARS

1. Likes to be alone.
2. Wants his own room.
3. Likes to be quiet.
4. Quite often pouts.

8 YEARS

1. Has great enthusiasm.
2. Likes organized games.
3. Knows about fair play and taking turns.
4. Likes to play, even if he doesn't win.

9 YEARS

1. Worries, is quiet.
2. Wants to be independent.
3. More interested in friends than family.
4. Complains when doesn't want to do something (eyes hurt, job too hard, etc.)

10 YEARS

1. Friendly.
2. Parents word is "law".

STUDENT ACTIVITIES

1. Have students observe and record the age and the behaviours of each child they tend. Have students compare their observations with the information presented in this unit. Where significant differences are evident between their observations and the theory, have students discuss why there are differences and what these differences are; e.g.,
 - If a child of 4½ years stumbles and falls, does it mean that the child is young for his or her age?
 - If a 3-year-old loves new experiences is the child advanced for his or her age?
2. Discuss "What does the phrase 'normal child development' mean?"

Community Partnerships

3. Invite parents whose children are tended in the school's child care centre to describe the behaviour of their children and to discuss how children's behaviour changes over time.
4. Invite a psychologist or a teacher of psychology from a local high school to discuss child growth and development.

Teachers intending to proceed immediately to the second child care learning activity, "Baby-sitting: Certificate Course" may use the second activity as a direct continuation of the first learning activity. If there is to be a time lag of more than one month, it is advisable to review the major learnings from this learning activity before proceeding with the certificate course.

THEME: Service that Makes a Difference
LEARNING ACTIVITY: Personal Grooming
GRADE (suggested): 8 and 9
TIME (suggested): 20-25 hours (each grade)

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the basic principles of personal hygiene and grooming
- recognize the relationship between personal grooming, self-image and the job search process
- recognize related career opportunities

Skills:

- begin to develop the ability to care properly for the hair, the hands and the face
- demonstrate the ability to handle personal grooming tools and equipment safely

Attitudes:

- display concern for own appearance
- appreciate the effect on others of a well-groomed appearance

RESOURCES

Student Resources

Students should be encouraged to obtain and bring their own grooming aids.

Teacher Resources

The Professional Cosmetologist. Dalton, John W. West Publishing Company, St. Paul, Minnesota, 1985.

Correlation of Learning Activity with Teacher Resource

Concepts, Skills and Attitudes	<i>The Professional Cosmetologist</i>
Hair Care - Shampooing - Conditioning - Curling	pp. 70-76 pp. 85-87 pp. 195-197, 309-312
Facial Care - Cleansing, Toning, Nourishing - Protecting (make-up)	pp. 356-357 pp. 369-375
Nail Care	pp. 422-430

Cosmetology: The Art of Making-Up Villa, Louise P Gage Education Publishing Company, 1987.

Personal grooming may be taught in a well-lit classroom that has, or is accessible to, a sink with hot and cold faucets, and has adequate electrical outlets.

Equipment tools and supply requirements include a class set of:

- small wall mirrors or "tent" two-sided table mirrors
- electrical extension cords
- demonstration mannequins
- tools, equipment and supplies for demonstrating hair care (e.g., combing, curling and brushing hair), manicuring nails and facial care.

Hair Care

combs (tail, setting, tangle)
brushes
curling iron
blow dryer
hair cosmetics
● shampoo
● conditioner
● hair spray

Manicure

emery boards
cuticle scissors/nipper
cuticle pusher
buffer (optional)
nail cosmetics:
● base coat
● polish
● top coat

Facial Care

towels
tissues
facial cosmetics:
● cleansing cream
● massage cream
● skin toner
● moisturizer
● make-up

TEACHER BACKGROUND INFORMATION

This is an introductory learning activity on personal grooming. It has four primary purposes:

- to acquaint students with the basic principles of personal grooming
- to assist students to improve their self-concept and to project a more positive image to others
- to enable students to explore and to practise skills related to personal grooming
- to acquaint students with career opportunities related to the field of personal grooming.

This learning activity may be used in both Grade 8 and Grade 9. When taught at both grade levels, the Grade 9 activities should build on previous knowledge.

Students progressing to the Grade 10 level of the Integrated Occupational Program may wish to further explore career opportunities in the personal and public services occupational clusters in the following courses:

- Hair Care 16
- Esthetology 16
- Commercial Food Preparation 16
- Food Service 16.

In addition, students should become aware that other people's first impressions are often based on appearances. That is, if a student applies for a part-time job, his or her personal appearance will provide a non-verbal communication to the prospective employer. In this context, the teacher may decide to introduce this learning activity with a class discussion on one or more of the following topics:

- How would you describe the well-groomed person?
- Is it necessary to spend a great deal of money to be well-groomed?

- What are the similarities and the differences between male and female good grooming practices?
- What indicators of good grooming might a prospective employer look for?

Each of the components of personal grooming may be taught through a combination of strategies including:

- teacher demonstrations
- student demonstrations and guided practice on self, mannequins and community partners
- demonstrations and discussions by community partner
- community partnership experiences including field trips, job shadowing and mentorships.

Teachers are encouraged to make this learning activity as practical as possible for each student, and to include males and females in as many of the practical student activities as possible. Activities traditionally associated with females (e.g., applying make-up, curling hair), can be learned by male students through guided practice on a mannequin or on female students and community partners.

HYGIENE AND SANITATION

Hygiene refers to the science of health.

Personal hygiene refers to how each person keeps the body healthy and looking, smelling and feeling its best.

Public hygiene refers to how governments try to maintain the health of people in society.

Sanitation refers to the practices used to maintain health and cleanliness both in the home and in public places.

STUDENT ACTIVITIES

1. Discuss: "Why are personal and public hygiene practices essential in the personal and public service occupations?"
2. Brainstorm and list the occupational areas in which strict personal and public hygiene practices are required by law; e.g., beauty salons, restaurants, etc.
3. Using a chart similar to the one which follows, brainstorm and categorize the personal and public hygiene practices commonly used in the home which may be required in the workplace. Indicate the benefits of these practices.

PERSONAL HYGIENE PRACTICES	BENEFITS	PUBLIC HYGIENE PRACTICES	BENEFITS

Community Partnerships

4. Invite the school nurse, the local public health nurse, a company nurse, or a doctor to discuss the importance of personal and public hygiene.

PERSONAL GROOMING DEFINED

Personal grooming is the process of improving the appearance of oneself or the appearance of others. It is sometimes called beauty care or beauty culture.

Personal grooming is not only related to the occupations of beautician, cosmetologist and esthetologist, but is also related to the success people have in obtaining and keeping a wide variety of jobs.

An individual's personal grooming reflects their personality to others. The way a person looks reveals whether a person:

- takes pride in their personal appearance
- uses all available personal grooming practices
- cares about how others see him or her.

Personal grooming practices include maintaining the health and cleanliness of the:

- body
- hair
- face
- nails.

STUDENT ACTIVITIES

1. Have students, through discussion or brainstorming, identify ways in which they practise personal grooming and categorize them under the four headings indicated in the chart which follows. (Note: In order to provide a non-threatening learning environment, indicate to the students that there is not a "correct" way to practise personal grooming. Different cultures may provide

different norms. Emphasize that personal grooming simply relates to maintaining the health and cleanliness of the body and the cleanliness of the clothes worn.)

BODY CARE	HAIR CARE	FACIAL CARE	NAIL CARE

Community Partnerships

2. Invite community partners and in-school colleagues to discuss the way in which personal appearance and grooming affects first impressions. Guests may include:
 - school principal
 - guidance counsellor
 - school secretary
 - beautician, barber, esthetician
 - office personnel manager
 - store operator
3. Have students interview people who work in the personal grooming industry to determine the things they like and dislike about their job.

CAREER OPPORTUNITIES

Students indicating an interest and/or demonstrating ability in personal grooming practices should be encouraged to become more aware of related career opportunities. Career opportunities directly related to personal grooming include:

- cosmetologist, hairdresser, barber (these careers require Journeyman Certificates)
- esthetologist
- manicurist
- cosmetic salesperson
- modelling
- wig technician.

Other careers which are indirectly related to personal grooming include:

- sales
- courier
- office work
- receptionist
- waiter, waitress
- hotel desk clerk
- cook
- photographer.

STUDENT ACTIVITIES

1. Have students discuss how and why personal grooming is indirectly related to the careers noted above.
2. Brainstorm:
 - "In what other career areas is personal grooming an important employability skill?"
 - "Is personal grooming important in other occupations; e.g., construction and fabrication, agribusiness, transportation, etc.?"

Community Partnerships

3. Have students explore the school and community libraries to identify the range of career opportunities open to qualified beauticians, barbers, cosmetologists, esthetologists. An in-class competition may involve having each student locate and bring to class a copy of "the most interesting job opportunity".

(Note: Many of the professional hair and beauty magazines contain entrepreneurship opportunities and offers of employment on tour ships and a range of countries around the world.)

HAIR CARE

Hair care involves a series of activities sometimes described as the "four C's":

Cleansing – the removal of waste products from the hair and scalp.

Conditioning – the temporary replacement of lost moisture and oils.

Cutting – shaping the hair for a specific style.

Curling – setting the hair using curling irons, rollers, blow dryers and other equipment and products, and brushing it into a desired style (optional for males).

STUDENT ACTIVITIES

1. Have students name and describe the tools, equipment and supplies they use to care for their hair.
2. Initiate field trips to beauty salons, professional hair care product suppliers and department store cosmetic areas. Have students identify, list and compare the cost and benefits of various hair care products. A chart similar to the one below may assist students when recording information.

SAMPLE COMPARISON CHART

PRODUCT	QUANTITY	COST	UNIT COST	DESCRIPTION OF PRODUCT BENEFIT
Shampoos 1. 2. 3.				
Conditioners 1. 2. 3.				
Hair Sprays 1. 2. 3.				

3. Have students demonstrate the techniques and products they use to care for their hair including:
 - shampooing
 - conditioning
 - curling
 - styling.

Encourage other members of the class to provide constructive feedback to one another as to the types of hair care products used and the techniques employed to produce a finished hairstyle.

4. Demonstrate and have students model basic techniques used to ensure proper:
 - Shampooing
 - wetting all areas of the scalp
 - selecting appropriate shampoo
 - covering all areas of the scalp with shampoo
 - massaging the entire scalp
 - rinsing shampoo from the hair thoroughly
 - using the "squeak" method to determine that hair is free from shampoo

- Conditioning
 - identifying the condition of hair and scalp
 - selecting an appropriate conditioner
 - applying and removing the conditioner following manufacturer's instructions
- Curling and styling
 - handling a comb
 - using a blow dryer
 - using a curling iron
 - brushing-out the curled hair into a finished style
 - securing the style with hair spray (optional)
- Sanitizing and storing tools after use.

Community Partnerships

5. a. Establish a customer service operation:
As students develop competencies and confidence in their grooming abilities, increased opportunities for concept, skill and attitude development can be facilitated through a customer service program. This type of community partnership activity can be used to:
 - encourage other students, teachers, parents and others to become participants in the I.O.P. student learning experiences
 - provide opportunities for students to develop an awareness of how to organize and operate a small business and how to provide support and guidance to others
 - provide outside validation and reinforcement for positive changes in each student's performance
- b. Establish a competitive environment:
 - keep records of how many "customers" are served by each student
 - initiate an in-class, inter-class or inter-school hair care competition. Invite community partners to act as judges.

FACIAL CARE

Facial care is designed to improve the health and appearance of the face. It involves:

- Cleansing – the removal of old make-up, oil and dirt
- Toning – closing the pores of the skin
- Nourishing – providing moisture to the skin
- Protecting – using make-up

STUDENT ACTIVITIES

1. a. Have students name and describe the products they use to care for their face.
- b. Have students demonstrate the techniques and products they use to care for their face including:
 - cleansing
 - toning
 - nourishing
 - protecting.

Encourage other members of the class to provide constructive feedback to one another as to products used and techniques employed to care for the face.

2. Demonstrate and have students model basic techniques used to care for the face:
 - Cleansing
 - selecting to clean the face either with a "good" soap or a cleansing cream
 - identifying the value of using a deep cleanser, e.g., mask, facial pack, etc.
 - applying and removing a deep cleanser following manufacturer's instructions
 - Toning
 - selecting and applying a cosmetic that will close the pores of the skin
 - Nourishing
 - selecting and sparingly applying a moisturizer
 - Protecting
 - selecting and correctly applying facial make-up
 - Sanitizing and storing supplies after use.

Community Partnerships

3.
 - a. Establish a customer service operation
Apply similar principles as indicated in the Hair Care section "Community Partnerships 5a".
 - b. Establish a competitive environment
Apply strategies similar to those indicated in the Hair Care section "Community Partnerships 5b".
4. Initiate field trips to beauty salons that offer cosmetology and esthetology services, to cosmetic supply houses, and to cosmetic departments of local stores. Have students identify, list and compare the cost and benefits of various ranges of facial care products. A chart similar to the "Sample Comparison Chart" previously shown may assist students when recording information.

NAIL CARE

Nail care, or manicuring, involves the cleansing, shaping and conditioning of the fingernails in order to improve their appearance.

The basic process of nail care includes the following sequence on each hand:

- filing to shape
- cleansing the nails
- pushing back cuticles
- applying nail polish (optional - If applied to males a colourless polish is used to protect the nail.)
- applying hand cream.

Care of the toenails is called pedicure.

STUDENT ACTIVITIES

1.
 - (a) Have students name and describe the tools, equipment and supplies they use to care for their nails.
 - (b) Have the students demonstrate the techniques and products they use to care for their nails. Compare the benefits of using different but related tools; e.g.,
 - nail clippers, nail files, emery boards
 - cuticle scissors, cuticle nippers.

Encourage other members of the class to provide constructive feedback to one another as to nail care products used and techniques employed to produce a finished manicure.

2. Demonstrate and have students model basic manicure techniques:
 - Filing the nails to shape
 - determining the "best" nail shapes for the hand
 - selecting the correct tool
 - filing from the corners to the centre of the nail
 - Cleansing the nail
 - using a nail brush and orange wood stick to cleanse both surface of the nail and beneath the free edge of the nail
 - Pushing back cuticles
 - using an orange wood stick or cuticle pusher to loosen and push back the cuticles
 - Applying nail polish
 - selecting and correctly applying nail polish using the 3-stroke method
 - cleansing polish from around the perimeter of the nail and from under the free edge
 - Sanitizing and storing all tools after using.

Community Partnerships

3.
 - a. Establish a customer service operation
Apply similar principles as indicated in the Hair Care section "Community Partnerships 5a".
 - b. Establish a competitive environment
Apply strategies similar to those indicated in the Hair Care section "Community Partnerships 5b".
4. Have students visit drug stores and other cosmetic suppliers and list and compare the cost and benefits of different ranges of nail care products. A chart similar to the "Sample Comparison Chart" previously shown may assist students to record information.

THEME: Service that Makes a Difference
LEARNING ACTIVITY: Safety and First Aid
GRADE (suggested): 8
TIME (suggested): 10-15 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the basic principles of health care and safety
- recognize that first aid training teaches people how to develop a safe lifestyle and know what to do in case of accident or sudden illness

Skills:

- demonstrate safe-use of equipment, tools and supplies
- recognize and treat simple injuries or illness, using first aid procedures

Attitudes:

- show concern for welfare of self and others
- value training in health care and first aid as both a life skill and a work skill
- develop improved safety awareness

RESOURCES

Teacher and student resource materials related to health care and first aid are available from the following agencies:

- Alberta Agriculture, Home Economics Division
- Alberta Workers' Health, Safety and Compensation
- St. John Ambulance
- The Canadian Red Cross.

TEACHER BACKGROUND INFORMATION

This learning activity will enable students to acquire the concepts, skills and attitudes which they may use to increase their awareness about related senior high school occupational courses and potential entrepreneurial opportunities that relate to health care.

The first aid component of this learning activity should be taught by a person trained in teaching first aid. In a situation where the teacher uses a community partner to teach first aid, the lessons should be supervised by the teacher.

Trained first aid instructors may be sought from among the following community agencies:

- ambulance authority
- police
- St. John Ambulance
- The Canadian Red Cross.

This learning activity introduces students to first aid practices and procedures related to:

- Artificial respiration
- Choking
- Wounds and bleeding
- Shock and unconsciousness.

Students should be advised that opportunities for further training in first aid may be available through a community agency and will be available in the senior high school occupational course sequence, Child and Health Care 16-26-36.

Cooperative planning by teachers (e.g., health and personal living skills and physical education teachers) will further assist students to develop and to transfer the knowledge, skills and attitudes learned in this activity to other situations. Demonstrating safety consciousness and being able to respond to emerging situations involving injury or illness are abilities that are respected by employers and transferable to every occupational cluster.

OCCUPATIONAL AND ENTREPRENEURIAL AWARENESS

Health care careers for graduates of the Integrated Occupational Program include a wide variety of occupations:

- home aide
- child care worker
- dietary aide
- day care worker
- residential aide.

By continuing their education beyond high school, students may aspire to occupations that offer increased responsibility and, usually, improved benefits; for example:

- nurse
- nurse's aide
- medical/dental/clinical receptionist.

STUDENT ACTIVITIES

1. Have students explore the classified advertisements in a local newspaper, count the number of job opportunities available in health care related occupations, and follow-up one or more of the advertisements in terms of:
 - wages
 - hours
 - holidays and other benefits.
2. Have students brainstorm to identify the opportunities that could, in the future, become available for people who possess basic training in health and safety practices.

Community Partnerships

3. Invite representatives of the health care professions to discuss career options, expectations and entry level requirements.
4. Have students locate and interview someone who is self-employed in a health care related field and ascertain the advantages and disadvantages of being an entrepreneur in that field.

SAFETY AWARENESS

Safety is everyone's business. Whether in the home, the school, or in the workplace, each person should take responsibility to ensure that their own safety and the safety of those around them are protected. Safety practices involve being able to:

- maintain one's personal health
- follow instructions when using equipment, tools and supplies
- recognize potentially dangerous situations
- respond to emergency situations; e.g.:
 - knowing what to do when the fire bell sounds
 - knowing how to shut off power equipment quickly
 - knowing when and how to give first aid.

Safety training is designed to make students aware of:

- Why accidents happen
- What injuries may result from an accident
- How accidents and injuries can be prevented.

Knowing the answers to these three questions will help each student to develop a safety oriented lifestyle which will be characterized by:

- having a positive attitude to safety
- following safety rules
- using protective clothing and equipment
- learning the safe operation of tools and equipment
- reading and following directions when using chemicals
- recognizing and interpreting hazardous product symbols

First aid training can be related to a variety of life and work situations, for example:

- storing medicines out of reach of young children
- wearing safety goggles when cutting metal or hard woods
- driving a car, motorcycle or riding a bicycle
- using a life jacket when boating, water skiing or canoeing
- keeping original labels on medications

In emergency situations, a person trained to be both safety conscious and trained in, at least, basic first aid should be able to:

- take charge of the emergency situation
- assess the present danger
- make the area safe for the injured person, self and others
- make the injured person as comfortable as basic first aid will allow
- seek assistance by calling an ambulance, police and/or fire department and to assist in giving first aid.

STUDENT ACTIVITIES

1. Brainstorm the areas that are potentially a threat to safety:
 - in the home
 - in school
 - in a variety of work sites

2. Assign a student to play the role of the class safety officer. Have the student keep an accurate record of all accidents or injuries that involve a member of the class. Have the safety officer assist the teacher or others to present safety and/or first aid instruction and help encourage other students to do research and make presentations on safety and safety awareness:
 - setting up and maintaining a first aid kit
 - handling a new tool or piece of equipment

Community Partnerships

3. Invite a nurse, doctor or representative from a community agency to discuss safety and the role of each individual in creating and maintaining high levels of safety awareness. (A nurse or doctor who works in an emergency department can provide useful information.)
4. Have students research the school's and local safety records (city, town, a company) and complete Resource 1: "Safety Checklist".
5. Have students visit other labs in the school and various worksites in the community and identify how safety is handled in each place visited.
 - a. Is each employee given a safety briefing?
 - b. Who handles first aid?
 - c. What safety signs and posters are posted?
 - d. Is there an accident report book? Who is responsible for reporting details?
 - e. Is there a "panic button"? How, when and why is it used?
6. Have students visit a local industry to determine injuries that have occurred over a one-year period.

Period _____ To _____		
Work related injuries that caused	Number	Percentage of Total
Major injuries		
- loss of life		
- broken limb		
Minor injuries		
- cuts		
- bruises		
- other		
Total		100

First Aid

First aid training should be provided by a person qualified to teach first aid. As a part of an introductory course in first aid, students should be taught how to:

- assess an emergency
- perform cardiopulmonary resuscitation (CPR)
- provide basic first aid when a person is choking, wounded, or bleeding

How to Assess an Emergency

One of the most important tools in first aid is the technique called cardiopulmonary resuscitation (CPR). If you do not know CPR, take a course. If you do not know where to find classes in CPR, call your local Red Cross chapter or contact the Canadian Heart Association. *You cannot learn proper CPR techniques from a book.* This specialized training, available from your local agencies, is essential in treating persons with cardiac arrest, acute airway obstruction, and respiratory distress.

Know the priorities – what to do first, next, and so forth

The most stressful experiences in first aid occur when you don't know what to do first. Several people involved in an accident may all require help; an accident victim may have more than one injury; or the nature of someone's injury or illness may be unclear, as with a child too young to explain or an adult who is unconscious, panicky, or confused. In any of these situations, you can sort things out appropriately by observing these priorities:

1. Ask for help

Shout for help before you do anything else. If others at the scene of an accident can assist you, you can treat several people or injuries at once, or someone else can phone for an ambulance while you give first aid. If you are trained in lifesaving techniques such as cardiopulmonary resuscitation, don't spend time phoning or looking for help until after you have given initial care for life-threatening emergencies that will not wait.

2. Check for dangers to yourself

Avoid becoming a second victim. Is there an electric hazard in the area? Gas, smoke, or fumes? Water or thin ice? A danger of falling? A violent individual? You must plan to avoid these hazards before you can help someone else.

3. Look for dangers to the injured person

If external dangers are present, you must move an injured or sick person to safety, if this does not endanger you as well. If the person is in the path of oncoming traffic, in a burning auto or a building that may collapse, plan to move him if you can do so without jeopardizing your own safety. If at all possible, give brief first aid for the most urgent conditions.

There may be reasons for *not* moving the victim. For example, if at all possible, you should not move someone with a possible back or neck injury. Protect the victim as much as possible, but do not move the victim unless *absolutely* necessary.

4. If you have had formal CPR training, check for and treat immediate threats to life

First, check breathing. If a person is not breathing or cannot breathe because of choking *and you are trained in CPR*, re-start his respiration before doing anything else. Next, check the pulse. If a person is breathing, he will always have a heartbeat; but if he is not breathing, his heart may have stopped as well. If you are trained in CPR attempt to resuscitate the victim. If not, call for help (use the emergency telephone number to call fire, police or ambulance).

The third immediate threat to life is severe bleeding. Control bleeding right after you've checked breathing and pulse.

There is another emergency in which seconds count: chemical burns. Even though most chemical burns are not immediately life-threatening, rapid action can prevent blindness or extensive injury.

5. Seek medical assistance

If you are alone with an injured or sick person and have not been able to summon help, you should at this point take a few minutes to telephone 911 or Operator, or find someone else who can call for assistance. For any serious injury or illness, the best assistance you can summon is by calling 911 and requesting a staff of trained paramedics.

It is important to know under what circumstances you should call for an ambulance, how to call for an ambulance, and what to do until the ambulance arrives.

(a) Dial 911, Operator, or your emergency phone number for any of the following problems: cardiac distress, respiratory distress, poisonings, major trauma, unconsciousness, altered mental status, or paralysis. Emergency medical technicians can help and if necessary perform rescues in these situations.

(b) Be sure to say, "This is a medical emergency."

Give:

- ☐ the phone number from which you are calling
- ☐ your location and how to find it
- ☐ the circumstances - what is the nature of the problem or complaint
- ☐ your name

This helps dispatch an ambulance or rescue vehicle quickly to the scene.

(Note: Liaise with Business Education teachers to reinforce proper telephone calling and answering procedures.)

6. Treat other urgent conditions

The following list includes serious conditions for which care should be given as soon as possible - before an ambulance arrives. They are listed in rough priority order (in case you must deal with two or more of them in sequence), but each can vary in severity and move up or down on the list:

- ☐ poisoning and drug overdose
- ☐ heatstroke
- ☐ moderate bleeding
- ☐ poisonous bites or stings
- ☐ hypothermia (lowered body temperature)
- ☐ broken bones, sprains, or dislocations
- ☐ eye injuries.

7. Treat or prevent shock

When any severe illness or injury overwhelms the body's defenses, shock may set in. Shock is essentially a sudden drop in blood pressure so severe that the brain and other vital organs do not receive the blood flow they need. It can be treated successfully only after the condition causing it (bleeding, poisoning, etc.) has been brought under control. It is important to recognize and treat shock to prevent further cardiorespiratory problems. While waiting for medical help you can raise the victim's legs and turn him on his side if he is vomiting. If shock is associated with an accident, assume the victim has neck or back injuries and use a "log roll" to keep his neck and back stable while turning him on his side.

8. Treat less urgent conditions

Once the above conditions, injuries, or illnesses have been controlled (or if none is present), care for other conditions (e.g., muscle cramps, nose injuries, etc.) if trained

CERTIFICATION AS A FIRST AIDER

Prior to students completing the introductory component of a recognized first aid course, the teacher should consult with community partners about student eligibility to receive a certificate of proficiency and the validity of using certificates obtained as prerequisites to more advanced courses.

STUDENT ACTIVITIES

1. Have students identify and record details of how they may attain more advanced levels of certification through in-school or further education courses.
2. Students who attain a satisfactory level of certification should be encouraged to offer their services as first aiders to the school sports teams, community sports groups and other activities where trained first aiders are needed.

Community Partnerships

3. Liaise with teachers in other subject areas and have students perform the role of safety officers and, where necessary, first aiders in other courses.
4. Encourage students to organize a first aider competition among themselves or with students in other classes and/or other schools. Request the services of community partners to act as judges.

GENERAL HEALTH AND SAFETY

Use Resource 1: "Safety Checklist" as a topic for research and discussion, or as an instrument by which students' safety awareness and safety practices may be evaluated.

SAFETY CHECKLIST

Poor  Excellent					
PRACTICE	1	2	3	4	5
<u>School Safety Procedures</u> ● Follows fire alarm and fire drill procedures ● Follows proper accident and first aid procedures					
<u>Equipment Safety</u> ● Demonstrates safe-use practices – tools – equipment – supplies ● Performs simple repairs					
<u>Chemical Safety</u> ● Handles and stores hazardous chemicals correctly					
<u>Food Safety</u> ● Demonstrates personal hygiene ● Protects and stores food correctly ● Sanitizes all working areas					
<u>Safety Awareness</u> ● Works to prevent accidents ● Recognizes unsafe tools and equipment ● Handles electrical appliances with care ● Warns others of unsafe conditions ● Knows and practices first aid					

THEME: Service that Makes a Difference
LEARNING ACTIVITY: Sewing Skills: It's Sew Easy
GRADE (suggested): 8 and 9
TIME (suggested): 20-25 hours, each grade (can be extended with additional projects)

LEARNING OBJECTIVES

The student will:

Concepts:

- recognize the basic parts of a sewing machine
- recognize different types of fabric
- understand how to use a sewing pattern

Skills:

- correctly operate a basic sewing machine
- stitch on paper to practise straight lines, corners and curves
- follow a pattern and produce a machine-sewn project

Attitudes:

- appreciate the value of the sewing machine as an aid to daily living and as a tool in the workplace

RESOURCES

Student Resources

Creative Living, Canadian ed., Don Mills, Ontario: Collier MacMillan Canada, Inc., 1985.

Correlation of Learning Activity with Teacher and Student Resources

Concepts, Skills, and Attitudes	Student Resource	Teacher Resources	
	<i>Creative Living</i>	<i>Creative Living Teacher Resource Book</i>	<i>Creative Living Teacher's Annotated Edition</i>
Sewing Equipment	pp. 411-417	pp. 104-105	pp. 411-417
Sewing Projects • drawstring bag • roll-up tool kit or jewelry bag		pp. 183-185 pp. 185-186	

Teacher Resources

Creative Living, Teacher's Resource Book. Canadian ed. Don Mills, Ontario: Collier MacMillan Canada, Inc. 1986.

Creative Living, Teacher's Annotated Edition. Canadian ed. Don Mills, Ontario: Collier MacMillan Canada, Inc., 1985.

Class set of:

- | | |
|------------------------|--------------------------------|
| ● tape measures/rulers | ● sewing gauges |
| ● shears | ● irons and ironing boards (3) |
| ● needles | ● sewing machines |
| ● metre sticks | ● scissors |
| ● irons | ● threads |

TEACHER BACKGROUND INFORMATION

This learning activity is designed to develop students' ability to use hand and machine sewing tools and materials. Simple projects should be used to introduce the basic concepts, skills and attitudes required by students in order to:

- develop basic hand and machine sewing skills
- appreciate that the ability to sew is both a life skill and a skill that is related to a number of occupations.

The projects outlined in this learning activity may be complemented and supplemented with teacher designed sewing projects or packaged projects obtainable from a variety of resource manufacturers including:

- Stonewood Products Limited
2040 Ellesmere Road, Unit 16
Scarborough, Ontario M1H 3B6
- J&P Coats (Canada) Inc.
Educational Affairs Department
P. O. Box 519, Station A
Montreal, Quebec H3C 2T6

HAND SEWING

While the majority of commercial sewing is performed using a sewing machine or a serger, the ability to sew by hand is a useful life skill and a skill that can be used in the workplace.

- Life Skills (replacing buttons, sewing hems, repairing unstitched seams, needlework hobbies)
- Work Skills (craftwork including embroidery, needlepoint, petit point, clothing repairs and alterations, upholstery repairs).

STUDENT ACTIVITIES

1. Have students practise
 - hand-sewing techniques
 - identifying different types of needles and their respective uses
 - threading needles of different sizes using different weights of threads
 - performing simple garment/fabric repairs (sew buttons and hems, restitch an open seam, bring fabric items from home that need minor repairs).

2. Have students select a hand sewing project from among a range of educational craft kits. Ensure that each student selects from a range of kits in keeping with his or her ability level. Some of the educational craft kits are categorized according to difficulty:
B - Beginner
I - Intermediate
A - Advanced.

Enrichment activities may include having students select and complete a project from a higher level range.

3. Brainstorm to identify the ways in which hand sewing skills can be used. Have students place each of the ways into a category (Life Skill, Hobby, Work Skill).

THE SEWING MACHINE

There are a variety of sewing machines available. The information related to the sewing machine presented in this unit may need to be modified to suit the machines presently available in the school. Similarly, the section on the safe use of tools and equipment in the sewing lab should be customized to match the facility.

STUDENT ACTIVITY

1. Have students study the sewing machine they are to work with, identify the various parts, and label the diagram. (See Resource 1: "Getting to Know Your Sewing Machine" and Resource 2: "The Sewing Machine".)
2. To reinforce students' knowledge of the parts of the sewing machine, have them complete Resource 3: "Stitch in the Blanks" and Resource 4: "Sewing Quick Quiz".
3. Ensure that students are fully aware of the safe use of tools and equipment commonly found in a sewing lab. Resource 5: "Sewing Safety" may be used or adapted for this purpose.

Community Partnerships

4. Have students visit a local sewing machines supplier to:
 - identify different machines
 - discuss the advantages and disadvantages of three different machines. A chart similar to the one below may assist students to record the information they receive.

TYPE OF SEWING MACHINE	COST	ADVANTAGES	DISADVANTAGES

SEWING WITH A SEWING MACHINE

Sewing with a sewing machine is a skill, which like all other skills, requires practice. The following student activity is used to develop students' ability to sew in a straight line, in curves, and around corners.

STUDENT ACTIVITIES

1. To provide practice in using the sewing machine, demonstrate and then have students follow these instructions:
 - a. Place an empty bobbin in the bobbin casing (do not thread the machine).
 - b. Position a copy of Resource 6: "One Line" under the presser foot.
 - c. Guide the model slowly forward so that the machine needle punctures holes in the paper along each of the lines printed on the model.
 - d. After machining along each of the lines, examine the punctures and count the number of these that are above or below each line.
 - e. Repeat steps 1-4 until all punctures exactly coincide with the lines.
2. To enable students to develop additional skills when using a sewing machine, the following exercise may be performed by students using copies of Resource 7: "On Line".
 - a. Place an empty bobbin in the bobbin casing (do not thread the machine).
 - b. Set the machine to the longest stitch length and a stitch width of "0".
 - c. Place Resource 7 in the machine as if it were a piece of fabric.
 - d. Start the machine and feed the model forward, carefully following first the straight lines, then the curves, and finally the corners and circle.
 - e. Examine the puncture pattern and count punctures above or below each of the lines, curves, corners, and circle.
 - f. Repeat steps 1-5 until all punctures are on the lines.
3. With the teacher's guidance, students should be permitted to do one or more projects of their own choosing. The project may be in kit form or it may require the student to use a pattern, select and cut fabric, and then sew the pieces of fabric together.

Resource 8: "Project Planning Sheet" may be provided to the students to assist them in planning their respective projects

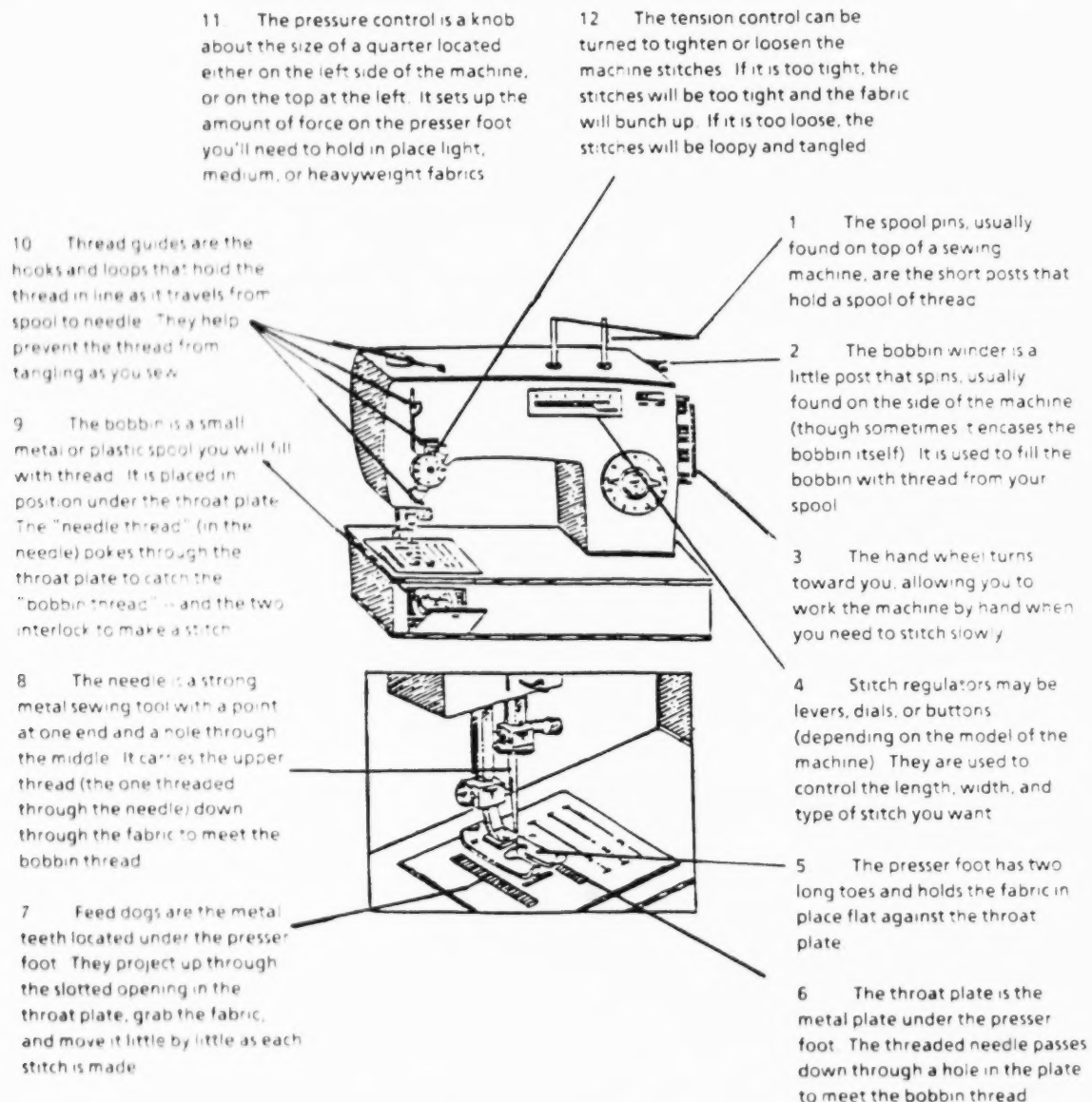
4. A sample pattern is provided as Resource 9: "Crafty Owl". This pattern is copyrighted and is reprinted by permission of: J&P Coats (Canada) Inc., Education Affairs Department, P. O. Box 519, Station A, Montreal, Quebec H3C 2T6.

Additional sewing projects are suggested in the teacher resource materials.

5. Resource 10: "How Did You Do?" may be used to encourage students to evaluate their own projects. In addition to self- and teacher-evaluation of each project, encourage students to seek feedback from other students in the class. The development of students' ability to accept and provide constructive criticism and praise can be made an additional learning objective of this activity.

GETTING TO KNOW YOUR SEWING MACHINE

As you can see below, the sewing machine has many loops, prongs, and moving parts. These parts are usually in about the same place on most machines (the machine below is a composite of many machines).



THE SEWING MACHINE

There are many makes and models of sewing machines, but they all work in much the same way. On the drawing below, label the parts of the machine using the following list as a guide

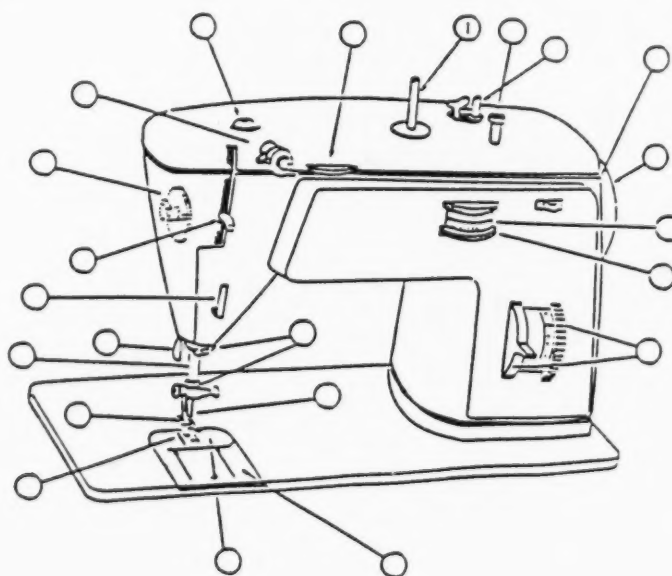
Place the appropriate numbers in the circles at the ends of the location lines. Each one indicates to a particular machine part. For example, number 1. "Spool pin or pins" is done for you

Parts of the Machine

1. Spool pin or pins
2. Thread guides (at least 3)
3. Thread take-up lever
4. Presser bar lever
5. Upper tension
6. Needle
7. Presser foot
8. Throat plate
9. Feed dog
10. Base or bed
11. Thread guide for bobbin winder
12. Stitch length regulator and reverse stitch control
13. Bobbin winder
14. Hand wheel
15. Stop motion screw
16. Thread cutter
17. Pressure control

Additional features available on some models:

18. Needle position lever
19. Bight width
20. Decorative stitch selector



"STITCH IN THE BLANKS"

This activity has been designed to help you to get to know your sewing machine by reviewing the parts and how they operate.

The first step to getting better acquainted with your machine is to unscramble the terms in the left-hand column. (Need a clue? Look over the definitions on the right.) Then check out the sketch of the sewing machine given in Resource 2. Write the name of the part on the line that points to its location. The more you know about your machine, the better you'll sew!

- | | |
|-------------------|---|
| EEENDL | 1. The _____ pushes the thread through the fabric to create a stitch. |
| OOSLP INP | 2. The _____ (2 words) keeps the spool of thread in place. |
| EADHTRRE EIUGSD | 3. The _____ (2 words) lead the thread to the needle, keeping it in place and away from the sewing mechanism of the machine. |
| EFED ODG | 4. The _____ (2 words) moves the fabric over the throat plate. |
| EERRSSP OFOT | 5. The _____ (2 words) holds the fabric securely while the machine is operating |
| LAABCEN ELEHW | 6. The _____ (2 words) gives manual control to raising or lowering the needle. |
| BBBNIO ACSE | 7. The _____ (2 words) holds the bottom thread in place. |
| NNIOEST EAORRUGLT | 8. The _____ (2 words) controls how tightly or loosely the top thread is sewn. |
| TTHARO TLP AE | 9. The _____ (2 words) is the metal portion beneath the needle which has guide lines to enable sewers to stitch a straight seam |
| AEKT-PU EERVL | 10. The _____ (2 words) moves the thread from the spool to make a stitch. |

"SEW QUICK QUIZ"

Think you know about all those gadgets on your machine? Then circle the answer that best defines each sewing machine part.

1. The spool pin...
 - a. will prick your finger if you're not careful.
 - b. is a strong metal sewing tool with a point at one end and a hole in the middle.
 - c. is a short post that holds a spool of thread.
2. The thread guides...
 - a. are hooks and loops that hold the thread in line from spool to needle.
 - b. sew two pieces of fabric together.
 - c. show you what colour thread should be used.
3. The hand wheel...
 - a. is located under the presser foot.
 - b. when turned, allows you to work the machine by hand.
 - c. when turned, allows you to steer the fabric in circles.
4. The presser foot...
 - a. has five long toes.
 - b. holds the fabric in place against the throat plate.
 - c. irons and steams the fabric.
5. The pressure control determines...
 - a. the tightness of the thread.
 - b. the width of the stitches.
 - c. the amount of force on the presser foot needed to hold the fabric.
6. The feed dogs...
 - a. move the fabric as each stitch is made.
 - b. are dogs that are always hungry.
 - c. chew the fabric edge while you sew.
7. The throat plate is located...
 - a. in the kitchen cabinet.
 - b. under the turtleneck.
 - c. under the presser foot.
8. The bobbin...
 - a. fits into position under the throat plate.
 - b. is the large wheel on the right side of the machine.
 - c. is the machine shared by Bob and Robin.
9. The bobbin winder...
 - a. holds the fabric in place.
 - b. fills the bobbin with thread.
 - c. empties thread from the bobbin.
10. The looseness or tightness of the stitches is determined by...
 - a. turning the hand wheel.
 - b. a ruler.
 - c. the tension control.
11. The stitch regulators control the...
 - a. speed on the machine.
 - b. length, width, and type of stitch desired.
 - c. bobbin thread.
12. The needle...
 - a. carries the upper "needle thread" down through the fabric to meet the bobbin thread.
 - b. helps to wind the bobbin.
 - c. is found in a haystack.

SEWING SAFETY

Working safely is very important in the sewing lab. Below are some steps that you can take to work safely in the lab.

Using the Sewing Machine

- Keep to a slow speed when learning how to use the machine.
- Take care to keep your fingers away from the needle.
- Sew carefully over pins.
- Don't lean your face too closely over the needle, in case it breaks.
- Position the cord so that people won't trip over it.
- Disconnect the cord from the outlet before disconnecting it from the machine.
- Close the machine carefully.

Using Sewing Tools and Equipment

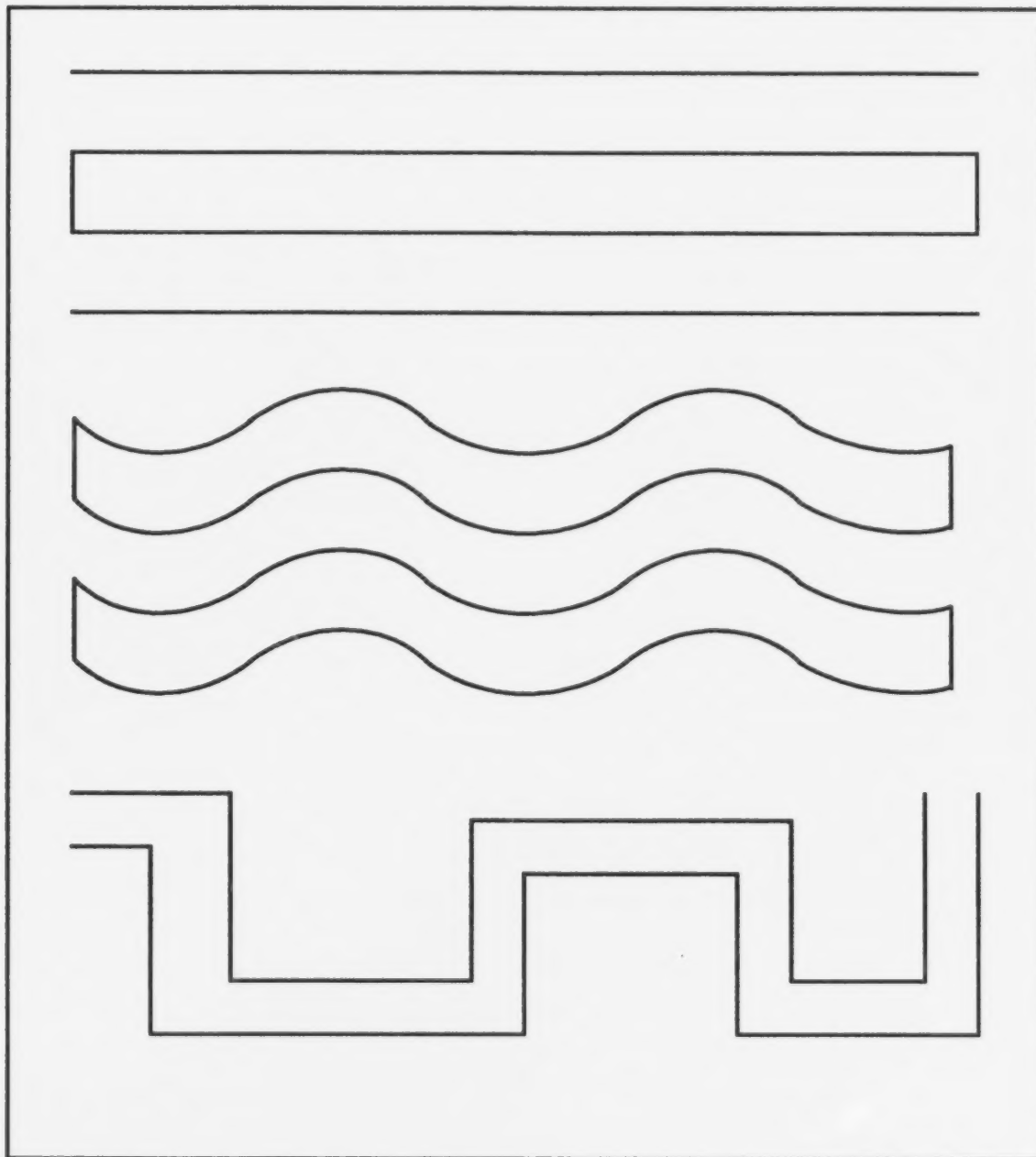
- Keep pins in a pin cushion - never put them in your mouth or clothing.
- Keep shears and scissors closed when not in use.
- Pass sharp objects like shears to someone else "handle first".
- Store items in a box when you aren't using them.

Pressing or Ironing

- Don't touch a hot iron.
- Keep your hands away from steam.
- Take care that the iron doesn't get pulled off the ironing board.
- Let the iron cool on a holder in an out-of-the-way place before putting it away.
- Store the iron correctly.

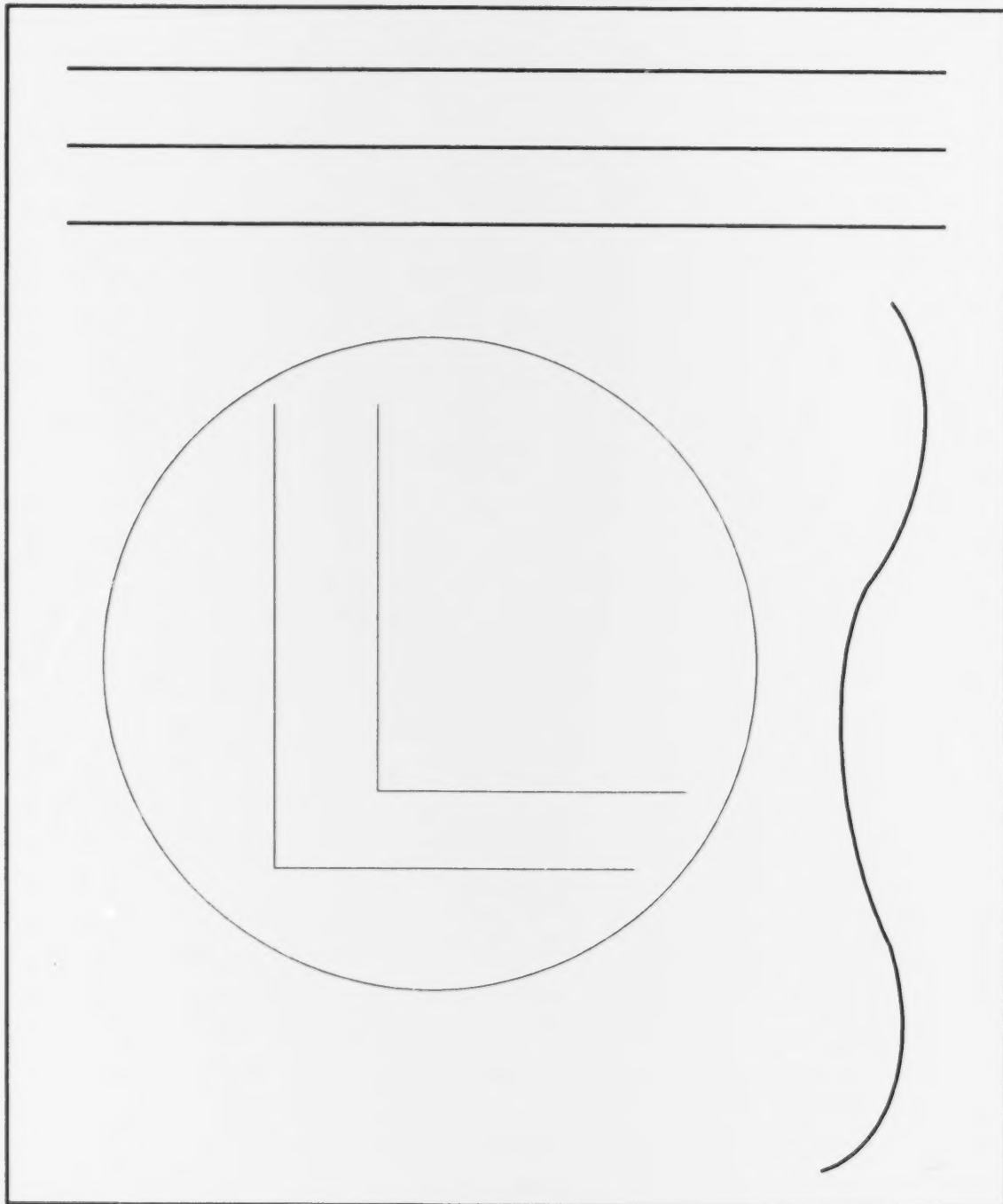
"ON LINE"

SEWING PRACTICE PATTERN 1



"ON LINE"

SEWING PRACTICE PATTERN 2



PROJECT PLANNING SHEET

Name _____

Project _____

If the project is in kit form, the answers to some of these questions may be contained on the instruction sheet provided with the kit.

Read all the instructions before starting on the project.

1. What skills will you be using to complete the project?

a) I will be using the following sewing skills

i) _____	v) _____
ii) _____	vi) _____
iii) _____	vii) _____
iv) _____	viii) _____

b) I need to learn the following sewing skills

i) _____	v) _____
ii) _____	vi) _____
iii) _____	vii) _____
iv) _____	viii) _____

2. What fabrics would be suitable for the project?

3. How much fabric is required _____

4. How much will the whole project cost?

Pattern	_____	Notions:	
Fabric	_____	Thread	_____
Interfacing	_____	Buttons	_____
		Trim	_____
		TOTAL COST	_____

5. What is the fibre content of the fabric or fabrics chosen?

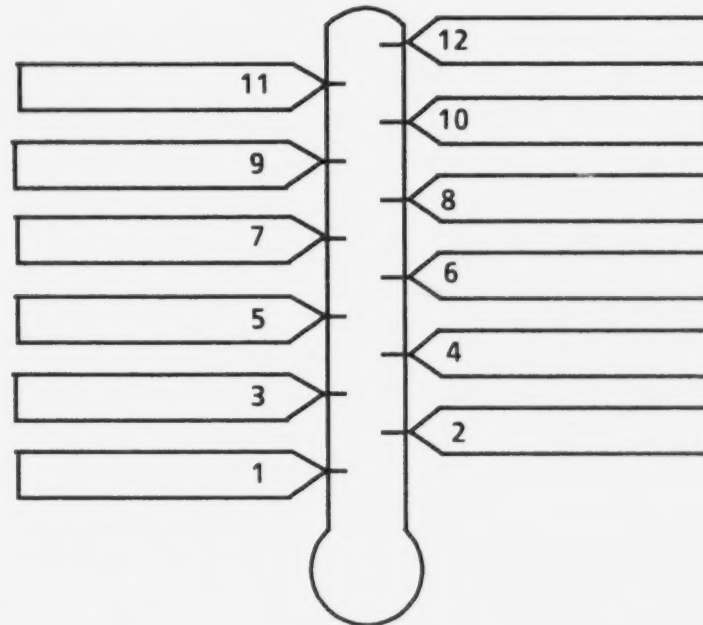
6. Do you need to preshrink the material? If your answer is no, why not?

Yes _____ No _____

7. Does the fabric have a "one way" design?

Yes _____ No _____

8. Plan your project and keep track of your progress by listing each step of the project in the space around the "thermometer" below. When each step of the project is complete, colour that portion of the thermometer.



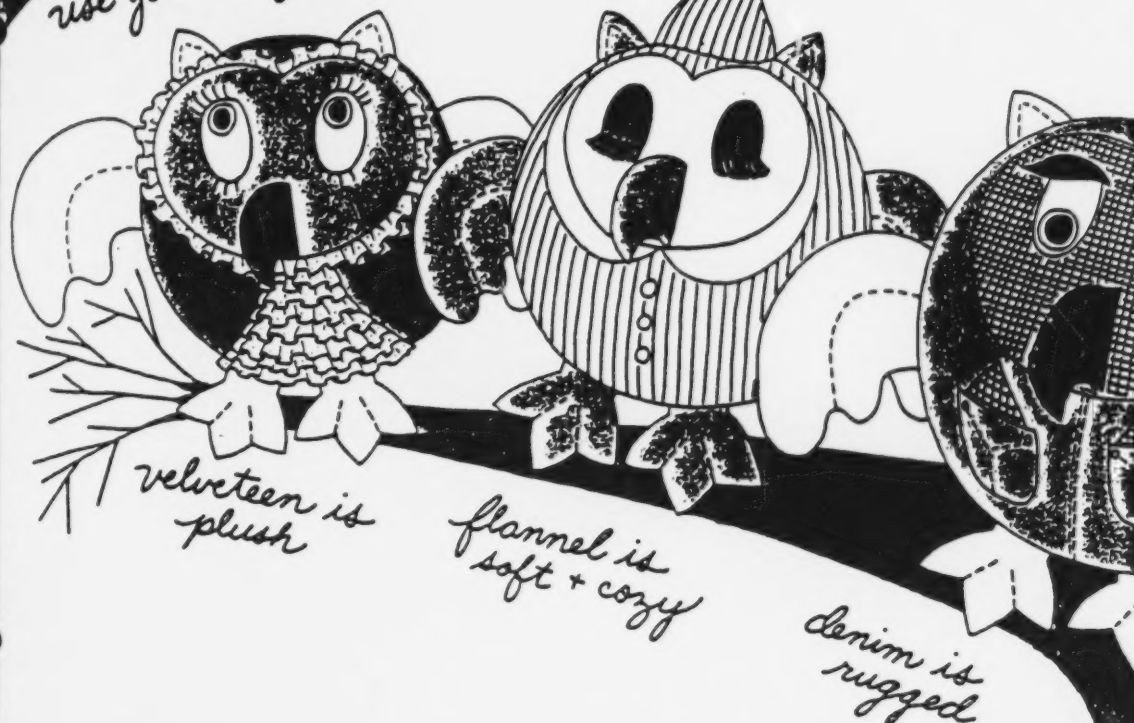
If you've completed all these steps, you're ready to get on with the sewing project. If you haven't filled in all the blanks, go back and do some more research.

Have the teacher check your project plan before starting on the project.

use your imagination...

calico is colorful

fake fur
is fuzzy



velveteen is plush

flannel is
soft + cozy

denim is
rugged

Coats

the thread makers

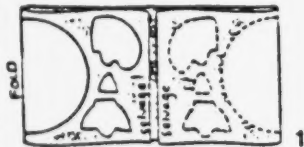
J.&P. COATS (CANADA) INC.
EDUCATIONAL AFFAIRS DEPARTMENT
P.O. Box 519, Station (A), Montreal, Que. H3C 2T8

What You'll Need

- Body, Ears, Wings, Claws: 0.5 m of 115 cm wide firmly woven or knit fabric
- Face: One piece of felt, 23 cm x 30 cm
- Eyes, Eyebrows, Beak: Two buttons and scraps of felt
- Stuffing: 225 g of polyester fiberfill
- For All-Purpose Machine Stitching: Coats Koban cotton wrapped polyester thread
- For the Hand Blanket Stitch Anchor Stranded Cotton and a Milward Embroidery Needle, size 5 to 7
- Tailor's chalk, tissue paper
- Optional: J. & P. Coats Rick Rack or other trims for decorative effects
- Fusible Interfacing for fusing fabric pieces

Pattern, Layout and Marking

- Trace each pattern piece onto tissue paper. Transfer all markings.
- With right sides together, fold fabric so that selvedge edges meet at center (1).
- Place Body, Ears, Wings, and Claws on fabric, as shown (1); pin and cut.
- Place Eyes, Eyebrows, Beak, and Face on scraps of felt; pin and cut.
- On the right side of the fabric, use tailor's chalk to mark the placement lines, center of Body, detail lines, and fold line of the Face and Beak.

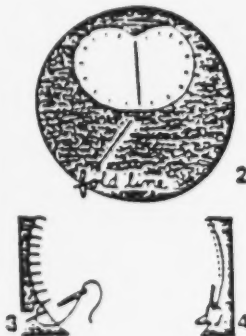


Stitch and Stuff

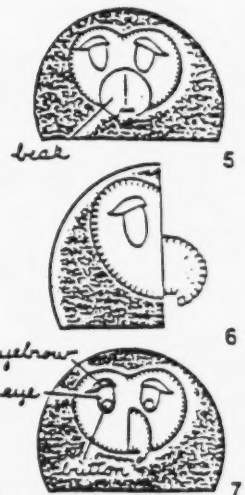
- Set the stitch length at 2.5 mm. Use a 1.5 cm seam allowance.
- Time Saving Hint: For Steps 1, 3, and 4, the Face, Eyes, and Eyebrows can be fused using fusible Interfacing.

FACE

1. Place the Face on the right side of one Body piece with the lower edge of the Face extending 1 cm below the mark for the center of the Body; pin (2). Hand-stitch the Face to the Body using the blanket stitch around the outer edge of the Face (3); or, machine-stitch close to the edge of the Face (4).



2. Place the fold line of the Beak on the fold line of the Face, with the lower edges even. Machine-stitch along Beak fold line; backstitch (5). Fold Beak edges together and stuff lightly; pin closed. Hand-stitch Beak using the blanket stitch (6).
3. Place Eyes on Face; pin. Hand-stitch Eyes in place using the blanket stitch (7).
4. Place Eyebrows over Eyes; pin. Hand-stitch Eyebrows in place using the blanket stitch (7).
5. Sew buttons in place (7).
6. If desired, decorate the Owl's body with rick rack or other trims.



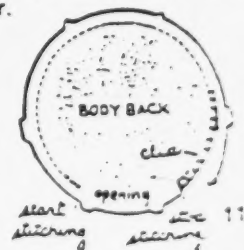
EARS, WINGS, AND CLAWS

1. Pin *wrong* sides of Ears together. Stitch around outer edges, leaving notched edge open; backstitch. Trim seam allowances to 6 mm (8). Repeat this step for the Wings and Claws. Then, stitch detail lines, as shown (9).
2. Stuff Ears, Wings, and Claws lightly. Baste notched edges closed.
3. Pin Ears, Wings, and Claws to right side of Body, matching notches.
4. Machine-stitch all pieces to Body along seam-line (10).



BODY

1. With right sides together, place Body Back over Body Front; pin. (Tuck wings in so they won't get caught in the stitching.) Starting at notch for Claw, stitch around Body leaving a 15 cm opening for stuffing; backstitch (11).
2. Trim seam allowances, except at opening, to 6 mm and clip every centimeter.
3. Turn Body right side out. Stuff to desired thickness. Fold edges of opening under 1.5 cm. Pin in place. Stitch opening closed using a whipstitch.

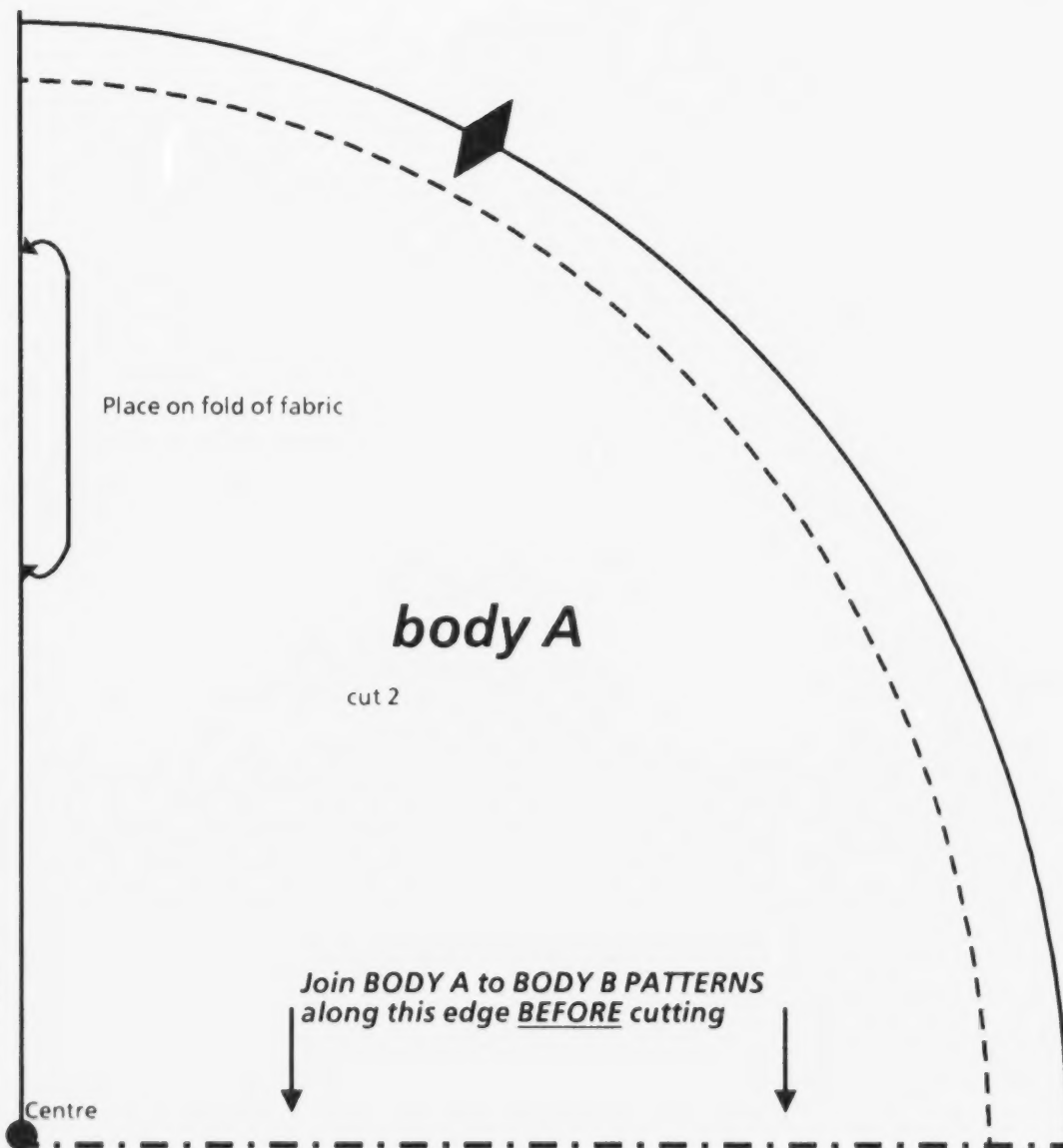


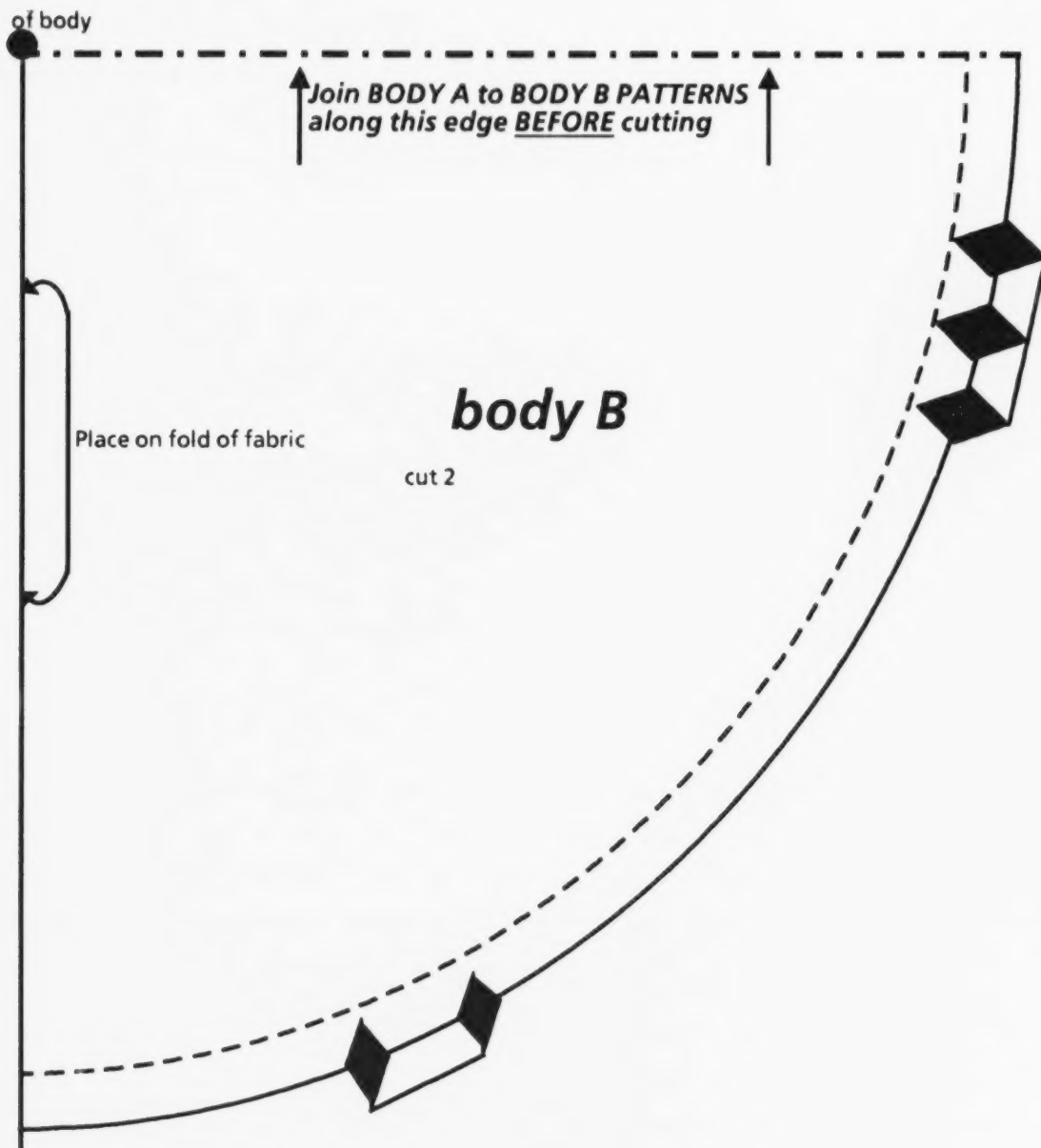
STITCH IN TIME® PROJECT LEAFLET

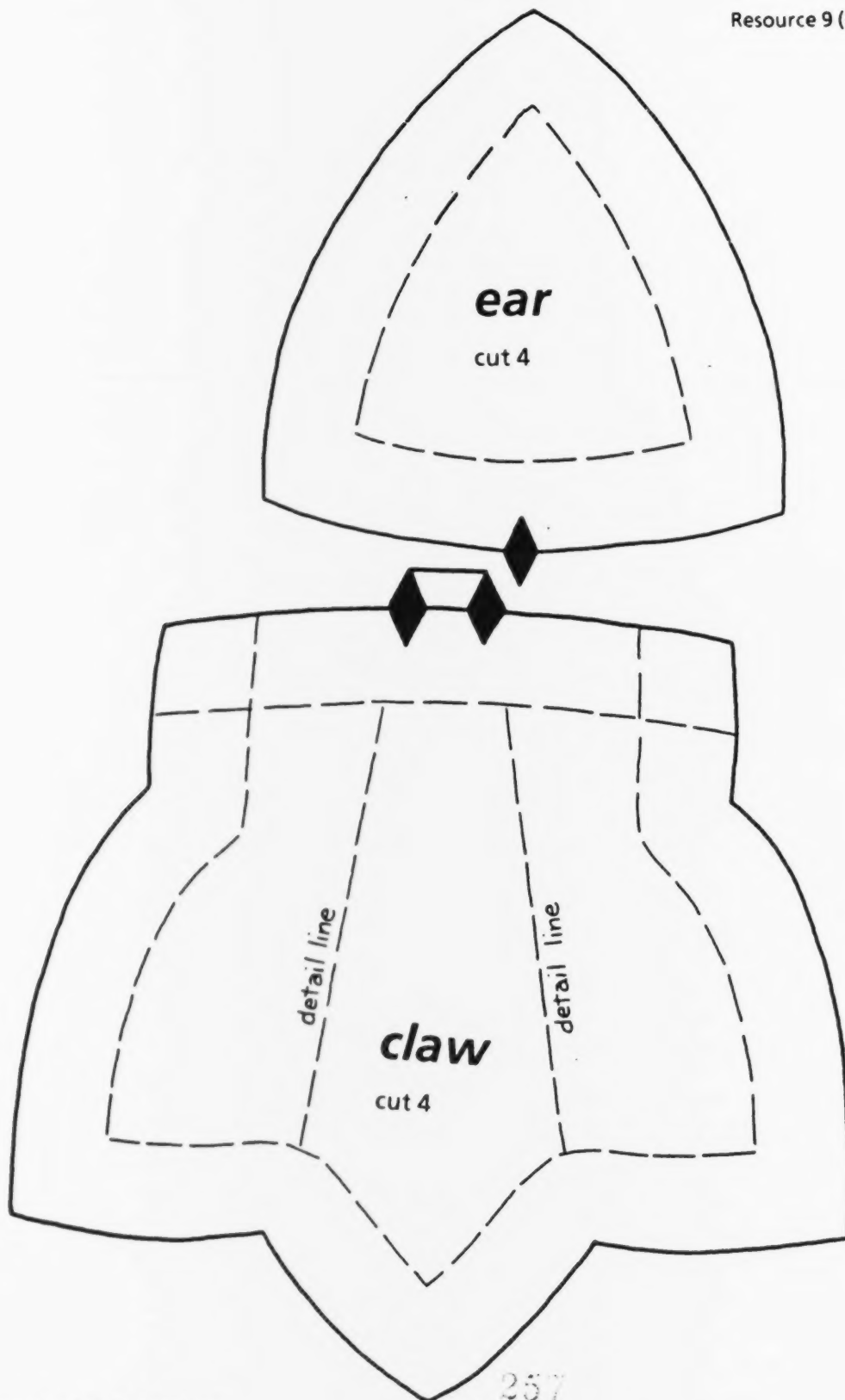
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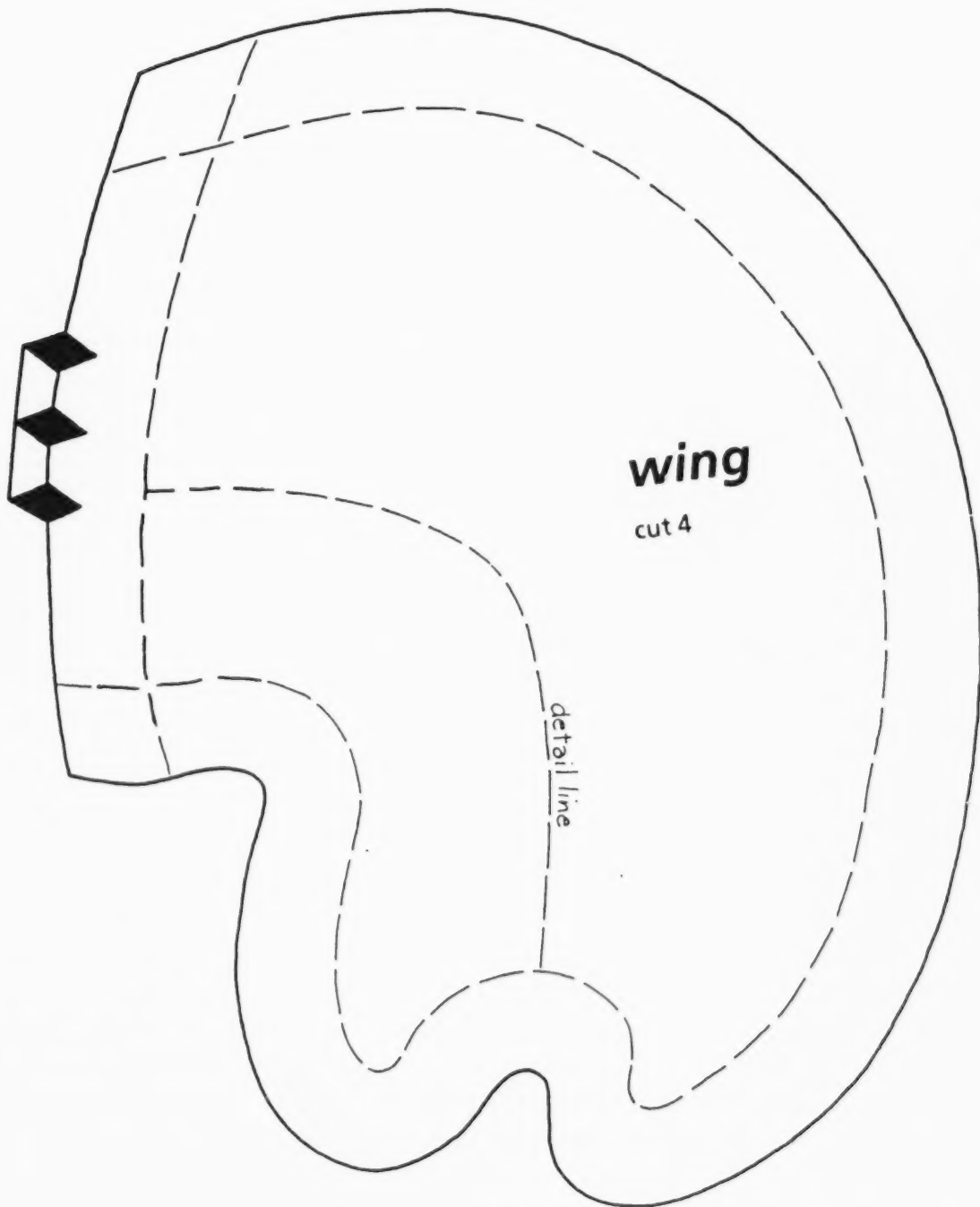
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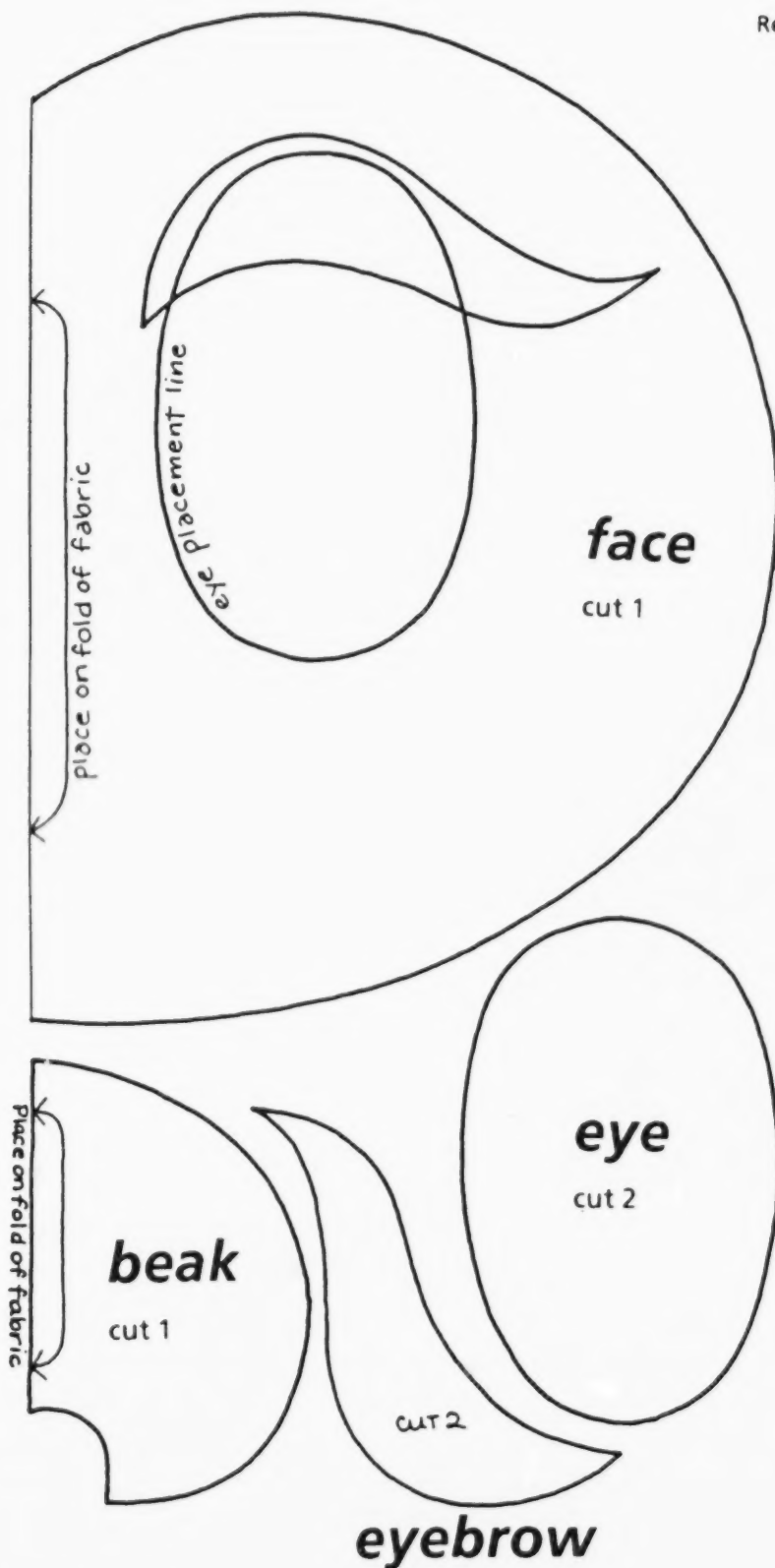
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HOW DID YOU DO?

Rate your sewing project on this chart. Be honest about how you feel, so you can decide for yourself the value of the experience.

How do you feel about your project in terms of:	A Great! 5	B Good 4	C So-So 3	D Not So Good 2	E Poor 1
The usefulness of new skills learned?					
The number of skills learned?					
The cost of the total project?					
The amount of time you spend on it?					
The amount of fun you had working on the project?					
TOTAL					

Add up the marks you've earned in each column. If you had all five points in columns A and B, you probably have a successful project, in terms of your personal satisfaction.

If only one of your marks was in columns A and B, there is probably a flaw in your project-planning, one you can pinpoint fairly easily. Try to find out exactly what the trouble is, so things will go better for you next time.

If you can honestly say that all your ratings should be under D and E, you may need some help. Look carefully at your skills in relation to the project you chose; maybe you'll want to try something less ambitious next time or perhaps your project was not challenging enough if you gave yourself straight A's.

And if most of your ratings were under C- just "so-so", be more careful when you choose your next project. Try to find ways to boost your personal satisfaction with your work!

If you were less than happy with the results of your project, list some ways you might try to improve your performance.

1. _____

2. _____

3. _____

4. _____

THEME: Service that Makes a Difference
LEARNING ACTIVITY: Baby-sitting: Certificate Course
GRADE (suggested): 9
TIME (suggested): 20-25 hours

LEARNING OBJECTIVES

The student will:

Concepts

- know the duties of a baby-sitter
- understand the rights and responsibilities of a baby-sitter

Skills

- attain a certificate of graduation in baby-sitting
- demonstrate the ability to attain a baby-sitting job

Attitudes

- display empathy for children and understand their needs
- appreciate the rights and responsibilities of parents as the employers and the baby-sitter as the employee

TEACHER AND STUDENT RESOURCES

The Personal and Public Services Learning Activity: "Introduction to Child Care" should be taught before this learning activity.

Teachers deciding to register their students for the Alberta Safety Council's "Baby-sitters Safety Course" which provides students with a graduation certificate upon successful completion of the course, should complete Resource 1: "Application for Baby-sitter's Safety Course" and Resource 2: "Alberta Safety Council's Baby-sitter's Safety Course" and submit them to:

Alberta Safety Council
10526 Jasper Avenue
Edmonton, AB
T5J 1Z7

To complement the material in this learning activity, teachers may obtain a copy of the "Baby-sitter's Safety Course" from the Alberta Safety Council at the above address

TEACHER BACKGROUND INFORMATION

Teachers deciding to register these students for the Alberta Safety Council's "Baby-sitter's Safety Course" should be aware of the council's requirements:

1. Students must be in good physical and emotional health.
2. Students should be 12 years of age or older. Younger children may enrol and attend lessons, but they cannot obtain a graduation card until they are 12. Younger students who successfully complete the course and will be 12 years old within six months may be presented with their graduation cards, without further testing, on or after their 12th birthday. Where there is a greater period than six months, the instructor should reconfirm the student's knowledge by either retesting or having the student repeat the course.
3. Students under 16 years of age must have signed consent of a parent or guardian to take the course.
4. Students should make notes on each lesson in the Student Resource Book provided. These books are to be marked along with the written and oral/practical examinations.
5. To graduate, students must not be absent from more than one lesson and should be urged to seek special instruction on the lesson missed.
6. Students must be punctual. Credit will not be given for attending a portion of a class.
7. Baby-sitting is a responsible job. Human lives are in the sitter's hands. Therefore, students should take their training seriously. An instructor has the right to dismiss any student who is flippant, inattentive, or whose behaviour disrupts the class. The instructor should advise parents of the reason for dismissal.

The council also requires students to obtain a mark of 70% or better to qualify for a graduation certificate. Using the council's *Student Resource Book*, the student is expected to obtain the following percentages in written, oral and practical components of the course

Resource Book	- 20%
Practical	- 30%
Final Written Exam	- 50%

Teachers deciding not to register their students with the Alberta Safety Council may consider providing students with an alternative certificate of graduation in baby-sitting or child care when they successfully complete this learning activity.

If a period of one month has elapsed since the student involved in the certificate course completed the "Introduction to Child Care" learning activity, **the teacher should review major points** from the "Introduction to Child Care" thematic learning activity.

THE RESPONSIBILITIES OF A BABY-SITTER'S EMPLOYER

Parents hiring a baby-sitter become the temporary employers of the baby-sitter. As employers, the parents have the responsibility to:

- provide the baby-sitter with necessary information
- pay the baby-sitter an agreed upon wage
- return home at or before an agreed time
- ensure that the baby-sitter returns home safely.

If the child to be baby-sat is handicapped or disabled, the parents must advise the baby-sitter of the handicap and of any special attention that must be given to the child.

It is important for students to be aware that:

- although a child may have a disability, all children should be treated with equal respect, care and consideration
- it is important to acquire knowledge about a child's condition by meeting with the parents and child ahead of time
- meeting the parents and the child one or two days before the baby-sitting job can help to make the parents, the child and the baby-sitter feel more at ease.

RESPONSIBILITIES OF THE BABY-SITTER

When a person accepts a baby-sitting assignment she or he becomes an employee and assumes responsibility for:

- THE CHILD'S SAFETY – Never engage in any activity, or allow the child(ren) to engage in any activity that could endanger the child(ren).
- THE CHILD'S WELL BEING – The child(ren) should be adequately clothed and fed.
- THE EMPLOYER'S INSTRUCTIONS – Instructions should be followed to the letter. If you are not sure about the instructions when they are given – ASK. It is better to clarify anything you do not understand before the employer leaves. This is particularly important if instructions are left for administration of medications.
- THE EMPLOYER'S PRIVACY – A baby-sitter should make sure that children are not allowed to act in a way that could damage property or personal effects in the home. Baby-sitters should not help themselves to any items that the employer has not specifically indicated is for their use.

When a baby-sitter first arrives, he or she should obtain clear and complete instructions for managing the child or children. Whenever possible this information should be in WRITING.

The most important information items to obtain are:

- TIME OF RETURN – Make sure that the time of return is clearly specified.
- PARENTS' LOCATION – The parents' itinerary should be outlined accurately and clearly. If possible, also obtain phone numbers.
- PHONE NUMBERS – Numbers must be provided for the following:
 - POLICE
 - FIRE
 - AMBULANCE
 - DOCTOR
 - HOSPITAL
 - POISON CONTROL CENTRE

- GAS COMPANY
- EMERGENCY CONTACT (relative or neighbour).

The baby-sitter should be sure to obtain information on:

- **HOW TO USE THE PHONE SYSTEM** – This is particularly important in rural areas or where telephone operations may be significantly different (e.g., party line)
- **FEEDING INSTRUCTIONS** – Feeding instructions for infants should be carefully written down. If formulas are to be mixed, the proportions and method must be carefully noted. Meal times for older children will involve knowing what they are supposed to eat, and how to prepare it – including how to use appliances in the home (microwave, range, oven, etc.).
- **BEDTIMES AND PLAYTIMES** – Playtimes should be closely followed. The parents will normally have established a routine for the children, and if this routine is not adhered to the children may be off schedule and difficult to manage.
- **GOING OUTSIDE OF THE HOME** – It should be clearly stated whether or not the children are allowed to go outside to play. It is important that the baby-sitter keeps close contact with the children at all times.
- **BATHING** – Bathing times and special instructions should be clearly stated.
- **PETS** – If family pets are to be fed, clear instructions must be obtained. Information should also be obtained on whether or not the pets are allowed outside. If the baby-sitter is uncomfortable with a family pet, the employer should be told ahead of time so the pet can be confined.

STUDENT ACTIVITIES

1. Have students prepare a form or checklist for use when they baby-sit. Ensure that all of the items mentioned above are included.

Discuss possible additions to the list and add these where appropriate.

2. Have students prepare a form for an employer to complete. (See Resource 4: "Baby-sitter's Information Form".)

Students who have already had baby-sitting jobs may be willing to relate the procedures followed in their baby-sitting experiences, any problems encountered, and how they resolved them.

3. Invite parents to discuss their expectations of a baby-sitter with the class. Encourage students to interact with the parents on such topics as:
 - what to do if a child refuses to go to bed
 - what to do if a child refuses to eat or wants more food than the parent recommended
 - using the television, stereo and other equipment
 - baby-sitter's wages.

KEEPING YOUR PARENTS INFORMED

It is important that the baby-sitter's parents know the employer's address and phone number. The baby-sitter should telephone home after arriving to advise parents when the employer will be returning, and whether or not a ride home may be needed after the job is completed.

If the baby-sitter feels uncomfortable about the job or situation, his or her parents should be notified of this. It is better not to accept a baby-sitting job if the baby-sitter believes the employer's demands are unreasonable or dangerous.

STUDENT ACTIVITY

1. Have small groups of students role play potential baby-sitting situations.

Community Partnerships

2. Invite parents to the class to discuss alternative strategies for handling different situations.
 - (a) The baby-sitter arrives and is told that part of the job is to wash all the dirty dishes and do the laundry.
 - (b) The baby-sitter is asked to baby-sit the neighbours' children and the employer's children in the same house, at the same time. There will be five children to care for.
 - (c) While baby-sitting, a child wants to try an activity or have something to eat that the employer has not told the baby-sitter about.

MAKING FRIENDS WITH THE CHILDREN

A baby-sitter needs to earn the trust of the children being baby-sat. Therefore, the child(ren)'s first impression of the baby-sitter is very important.

If this is the first time that the baby-sitter has met the children, the baby-sitter should be introduced to each of the children. The baby-sitter should talk to the children and get to know them before the parents leave, so that they feel comfortable.

If the children are small, it is best to kneel or squat down when talking to them so the children are not intimidated by your height. The closer you can make yourself to their height, the easier it is to talk to them and gain their confidence.

Talk with older children about the things they like to do, games they like to play, and about their favourite toys.

STUDENT ACTIVITIES

1. Have students role-play, introducing themselves to children of various ages.
2. Have students practise age-related introductions with children attending the in-school day care centre.

Community Partnerships

3. Arrange for students to visit a local day care centre and encourage them to practise their "making friends" behaviours.
4. Have parents discuss the idiosyncrasies of different children (playing habits, fear of strangers, or effect of colours, fear of dark, time taken before going to sleep, security blanket, and so on).

BATHING CHILDREN

The Alberta Safety Council states that a sitter under sixteen years of age should refuse to bathe a child under two years of age.

Children should not be bathed unless the parents have requested it. When bathing children:

- assemble everything needed for the bath beforehand (towel, soap, toys, clothes)
- fill a tub or basin with no more than 5 cm of lukewarm water
- make sure the water is not too hot. Test the temperature of the water carefully before placing the child in the tub. Place the child in the tub at the end farthest from taps.

- if the baby is small, make sure the head is supported with one hand, while the other is used to wash the baby
- never leave babies or small children unattended in the bath -- even for a moment. If another child requires attention, or the doorbell or phone rings, the child should be removed from the bath and taken with the baby-sitter to attend to the interruption
- do not clean a baby's eyes, ears or nose by putting an object such as a Q-tip into them
- never let children take items into the bath unless the parents have specified them. Small items such as tops of shampoo bottles, small toys, etc., could be swallowed by the child
- dry the child carefully and dress him or her immediately following the bath to prevent chills.

STUDENT ACTIVITIES

1. Using a doll and appropriate bathing supplies and equipment, demonstrate the correct bathing procedures, and have students model the teacher's demonstration.
2. Discuss: "A baby-sitter is sitting two children, one is aged nine months, the other is aged four. Which should be bathed first? Why?"

"A child aged five or six may not want to be bathed by a baby-sitter. How should the baby-sitter handle this situation?"

GIVING MEDICATION TO CHILDREN

If the children are to receive medication of any kind, it is important that the instructions be clearly written down by the parents -- including child's name, type of medication, time of use and frequency, and any special instructions.

Medication should always be kept out of reach of the children. After a medication is used, the container should be returned to a safe location immediately.

Make sure that the medication is clearly labelled as being for the child to whom it is to be given. If it is an over-the-counter drug, make sure the parents have clearly specified the frequency and dosage.

Never give any medication that has not been specified by the parents.

STUDENT ACTIVITY

1. Discuss: "What should be done if a child refuses to take prescribed medication?"

Community Partnerships

2. Have the school nurse, local pharmacist, medical practitioner, or health unit official come in to discuss types of medication, administration of medication, and possible side effects.

HANDLING A WET BED

Handling a bed wetting situation is not an uncommon task for a baby-sitter.

If a child wets the bed, first reassure the child that it's not a terrible thing to happen. When the child is reassured, make sure he or she has a proper change of clothes. Strip the bed and remake with fresh bedding. Tuck the child in and again reassure them that it's okay.

Make sure the bedding and clothing are placed where the parents can locate them easily, and inform the parents when they return.

STUDENT ACTIVITIES

1. Have students role play handling a bed-wetting situation with a three-year-old child.
2. Discuss how the baby-sitter can show sensitivity to the child who has wet the bed, without making the child feel guilty for his or her behaviour.

Community Partnerships

3. Invite the school nurse or medical doctor to discuss bed wetting with the class.

SAFETY

The child's safety, the safety of the home, and their own safety should be the major concerns of a baby-sitter.

Child safety Child safety practices include protecting the child from accidents and injuries by ensuring that:

- small objects are out of reach of babies and infants
- knives, pencils and other sharp objects are restricted to children capable of handling them properly
- children are steered away from electrical outlets
- children do not play in an unsupervised or potentially dangerous area
- plastic bags and other similar containers are put out of reach
- the child is allowed to play only safe games and with safe toys.

With the employer's permission, a baby-sitter may take a child for a walk. If a stroller is used the baby-sitter must ensure that:

- the stroller is in good working condition (brakes, wheels, straps)
- the child restraint straps are secured
- the child is never left unattended.

Home safety When baby-sitting, the baby-sitter should protect the home and its contents:

- lock all outside doors
- close drapes at night
- know what to do if you think an intruder has entered the house
- never allow strangers into the house
- do not invite friends to come to the house where you are baby-sitting
- know how to react in case of a minor or major fire
 - know the location of and how to use a household fire extinguisher
 - know when and when not to use water on a fire
 - **know how to contact the fire department**
- demonstrate safe practices when preparing food in the kitchen
 - turn handles of pots and pans and spouts of kettles inward, away from the prying fingers of a small child on tiptoe
 - move electrical cords out of reach
 - use potholders or oven mitts when handling hot dishes
 - handle glassware and jars with care
 - open cans carefully and dispose of can (and its lid) immediately after it is emptied
 - take extreme care when using a gas range

GETTING HELP IN AN EMERGENCY

It is imperative that the child care worker or baby-sitter obtain the name, address and phone number of a contact in the event of an emergency. This should be someone who is familiar with the children and has agreed to assist in the event of a problem.

When baby-sitting, and especially if the parents do not have an emergency contact available, make arrangements with your own parents to assist you in case of trouble.

Make sure phone numbers are available for all emergency services. Know the local emergency numbers.

Fires are a major hazard that can put the life of the child and the child care worker at risk. The following emergency situations may occur at any time. It is important that students know what to do, when to do it, and how to act in the event of a fire.

A Minor Grease Fire

A minor grease fire on a stove can be extinguished by using baking soda. Make sure the pan is removed and the stove turned off immediately to prevent re-ignition.

A Minor Paper or Fabric Fire

A minor paper or fabric fire can be extinguished by using large amounts of water. If possible, move the object or container outside after extinguishing.

Major Fires

The following rules should be followed for a major fire:

- Evacuate children immediately to a safe place; e.g., a neighbouring house or building and call the fire department from a neighbour's telephone.
- Don't try to be a hero and extinguish the fire alone.
- A hot door indicates there is flame on the other side – don't open it.
- In the event of thick smoke, have the children crawl out of the house. There is more breathable air at the floor level.
- Don't dismiss any indication of smoke – heed the old saying "where there's smoke, there's fire".
- If it is safe to do so, make sure doors and windows are closed to prevent feeding air to the fire.

STUDENT ACTIVITIES

The broad range of safety practices described above need to be practised and reinforced on an ongoing basis.

1. Have students compile their own lists of safety practices for each room of an average house and share these lists with classmates. A composite list may be compiled and posted in the classroom, and a copy given to each student.
2. Have students who have previously baby-sat describe how they handled various safety related situations on the job.

Community Partnerships

3. Invite a fire marshall to describe and demonstrate fire safety practices, emergency exit techniques and using water and a household fire extinguisher to put out a minor fire.

FIRST AID

A baby-sitter's job is to prevent injury to the child and to himself or herself. However, accidents can, and do, occur. First aid involves giving basic treatment to minor injuries.

A BABY-SITTER SHOULD NEVER ATTEMPT TO TREAT ANYTHING MORE SERIOUS THAN A MINOR CUT OR ABRASION. ANY SERIOUS INJURY SHOULD BE HANDLED BY THE APPROPRIATE HEALTH AUTHORITY.

A baby-sitter may perform first aid on cuts and scrapes and remove slivers.

PARENTS MUST BE INFORMED OF ALL INJURIES OCCURRING TO THEIR CHILD NO MATTER HOW MINOR THE INJURY MAY APPEAR TO THE BABYSITTER.

Cuts and Scrapes

Minor cuts or scrapes should be washed clean to remove any dirt particles, treated with a mild antiseptic, and bandaged if necessary.

Slivers

Slivers should be carefully removed with the use of a pair of tweezers. Be careful not to push the sliver in further. After the sliver is removed, clean the area with a mild antiseptic and bandage if necessary.

Foreign Objects in the Eye

If the object is visible and is not on the pupil, use the corner of a clean handkerchief or tissue to carefully remove the object.

Choking

If an object is lodged in the child's throat:

- WITH A BABY – hold the child upside down and tap sharply between the shoulders
- WITH A SMALL CHILD – sit down and lean the child over your legs, head down, and hit sharply between the shoulder blades.

If a child stops breathing, start to perform rescue breathing and call the fire, police or ambulance emergency number immediately. Be prepared to give the exact address and phone number of the house.

Rescue Breathing

If a child stops breathing, start the following mouth-to-mouth procedure IMMEDIATELY.

RESCUE BREATHING *Start Immediately*



1. **TILT HEAD
LIFT NECK**
to open
airway

2. **PINCH
NOSTRILS**
to prevent
air leak

3. **SEAL TIGHT
BLOW IN**
chest
should rise

4. **REMOVE
MOUTH**
listen for air
leaving lungs

**CONTINUE ALL STEPS AT NORMAL BREATHING RATE
UNTIL BREATHING RESTORED OR MEDICAL HELP ARRIVES**

- **FOR BABIES** – do not pinch the nose. Do steps 1 and 3, then cover the baby's mouth and nose with your mouth and blow small, frequent puffs of air.
- **FOR SMALL CHILDREN** – Breathe with short breaths, 15-20 times a minute. Shorter, more frequent breaths should be used for smaller children.
- **FOR LARGER CHILDREN** – Breathe vigorously about 12-15 times per minute. The smaller the child the lesser the force. You don't want to over-expand the lungs.

THE FOLLOWING TREATMENTS MUST BE FOLLOWED UP BY IMMEDIATELY CONTACTING THE PARENTS, THE APPROPRIATE HEALTH AUTHORITY OR EMERGENCY RESPONSE CENTRE.

Shock

Shock is usually characterized by loss of colour, tremors, coolness of skin, faintness, nausea or vomiting, or shallow and rapid breathing.

Loosen clothing around neck, chest and waist to allow freer breathing. Wrap the child in a blanket to prevent loss of body heat. Have the child lie down and elevate the legs. Do not give the child anything to drink until he or she appears to be fully recovered.

Head Injuries

Any head injury should be regarded as potentially serious. If the child strikes its head, and appears to be tired or listless after doing so, call for medical assistance – the child may be suffering from a concussion. Do not let the child go to sleep.

Poisons

If a child has swallowed any substance or medication that is potentially hazardous, contact the Poison Control Centre immediately for assistance. If there is a label on the container, follow the emergency treatment indicated on the label. Do not force the child to vomit or allow the child to drink large amounts of liquids.

Fevers

If a child is extremely feverish, bathe the child in cool water to attempt to reduce the fever. Call for assistance if the fever does not disappear.

Convulsions

Loosen clothing. Bathe child in cool water to reduce fever. Make sure the child can breathe. Obtain assistance immediately.

Electric Shock

If the child is still in contact with the live electrical device or wire, push the object out of the way with a wooden broom handle or other non-conductive object. Treat the child immediately for shock. If breathing has stopped, administer resuscitation immediately.

STUDENT ACTIVITIES

1. Have students review Resource 5: "Summary of a Baby-sitter's Role and Responsibilities" and discuss any areas of concern.
2. Use Resource 6: "Baby-sitter's Safety Examination" to evaluate students' knowledge of baby-sitting practices and procedures.

Community Partnerships

3. Complete Resource 3: "Alberta Safety Council's Baby-sitter's Course Attendance Record" and submit it for student certification.
4. Encourage parents who require a baby-sitter to contact students who have graduated from the certificate course in baby-sitting or from some other recognized baby-sitting program.

APPLICATION FOR BABY-SITTER'S SAFETY COURSE

Date

To: ALBERTA SAFETY COUNCIL
10526 Jasper Avenue
Edmonton, Alberta
T5J 1Z7

We hereby apply for registration as sponsor of a Baby-sitter's Safety Course and submit the following information.

(Name of organization desiring to sponsor course)

(Name of person designated as course instructor)

(Mailing Address)

(Postal Code)

(Phone)

(Class Location)

1.

2.

3.

4.

5.

Exam

Graduation

The sponsoring organization agrees:

1. To obtain a competent instructor for all subjects, and/or special instructors for specific lessons.
2. To present the course as outlined by A.S.C.
3. To keep an attendance record and submit a copy to A.S.C.
4. To follow student age and course marking guidelines.
5. To return unused materials to A.S.C. within 60 days of invoice or receipt date.

Signature of organization official

ALBERTA SAFETY COUNCIL'S BABY-SITTER'S SAFETY COURSE
STUDENT APPLICATION FORM

Sponsored by _____

Dates _____ Time _____

Location _____

Course Instructor _____

Address _____
_____**APPLICATION**

All persons wishing to take an Alberta Safety Council Baby-sitter's Safety Course and qualify for the graduation certificate must provide the following information before enrolment:

Name _____

Address _____ Phone _____

Age _____ School _____ Grade _____

Sitting experience: Own Home () Employer's Home () None ()

Signature of Applicant**PARENT'S CONSENT**

Any applicant under 16 years of age must obtain the consent of his or her parent or guardian on the form below

I have read the above announcement of a Baby-sitters Safety Course and hereby give permission for my

Daughter () Son () Ward ()

whose signature appears above, to attend. I will do my best to see that he or she attends classes regularly and punctually.

Signature of Parent or Guardian

[illegible]

Number Graduated

BABY-SITTER'S INFORMATION FORM

HELLO Mr./Mrs./Ms. _____

I'm your baby-sitter. Thank you for calling on me to baby-sit.

I want to do a good job for you.

You can help me by providing the following information:

PLEASE PRINT:

Your name: _____

Address: _____ Phone: _____

Child(ren)'s Names: _____

Doctor's name: _____ Phone: _____

Neighbour: _____ Phone: _____

Where will you be? _____

Address: _____ Phone: _____

When will you return? _____ o'clock

PLEASE TELL ME:

_____ Has your child special fears or dislikes?

_____ Is he/she allergic to any foods or treats?

_____ Where is he/she allowed to play? Where not?

_____ What does he/she wear outdoors? Where are clothes located?

_____ Sleepwear? Where located? When is bedtime?

_____ Bedtime ritual? prayer? story? favourite toy? before bed snack or treat?

_____ Location of extra diapers? sleepwear? bedding?

_____ Location of light switches? appliance controls?

_____ Are any appliances not working properly?

_____ Do you wish to have the doors locked?

If medication of any kind is to be given, please give EXACT written instructions under "Special Instructions" as to time, method of giving, dosage

SPECIAL INSTRUCTIONS:

SUMMARY OF A BABY-SITTER'S ROLE AND RESPONSIBILITIES

Before leaving home:

- Give your parents the phone number and address of where you will be baby-sitting.
- Indicate the time of return, if known.
- Arrange for transportation in the event of problems.
- Pack a collection of games and/or activities that you may be able to use to keep the children occupied. Try using the playthings you have brought. Most children enjoy new games, toys, activities and stories.

When arriving:

- Introduce yourself to the parents. Remember that first impressions are important. Be well groomed, smile, and speak clearly.
- Obtain instructions:
 - time of return
 - location of parents (address and/or phone number)
 - phone numbers of emergency services
 - phone numbers of emergency contact
 - instructions on how to use the phone
 - feeding instructions
 - medication instructions (in writing)
 - playtimes
 - taking the children outside
 - bathing the children
 - bedtimes and routines
 - care and warnings about pets
- Contact your parents as soon as your employers have left, to provide them with information that everything is in order, the expected time of your employer's return, and whether you'll need a ride home.

While baby-sitting:

- Make frequent checks on the children.
- If a child wakes up and needs attention, have the child sit with you on a chair or couch until they are ready to return to bed. Don't lie down with the child. You may fall asleep and neglect the other children or roll over and hurt the child.
- Don't "raid" the refrigerator. Always take some snacks with you in case none are provided. Don't, of course, eat them in front of the children.
- Don't smoke while baby-sitting. It is a poor influence on the children and it can be hazardous if you fall asleep with a cigarette in your hand. Parents may also object to anyone smoking in their home.
- If children are permitted to watch television, make sure they don't watch any shows with excessive violence or a great deal of action, before bedtime; they may keep the children awake.
- Quiet games or activities, such as reading to the children or colouring with them, are best before bed.
- Never have friends over unless you have made prior arrangements with the employer. If they allow friends, remember that your job is to look after the children, NOT to entertain friends.
- Never allow strangers into the home. Explain that you will contact the parents if necessary and convey any messages to them. If they keep insisting on being allowed to enter the home, summon help.
- Keep doors locked.
- Follow all the instructions given to you.

Going home:

- Do not walk home alone if it is late at night. Accept a ride from your employer or call your own parents.
- If you are unsure of the employer or he or she appears to be impaired, it would be best to phone your parents for a ride home.
- If your parents aren't able to drive you home, consider a taxi. It may use up your earnings, but it's better to be safe.

BABY-SITTER'S SAFETY EXAMINATION
(Adapted from Alberta Safety Council: "Baby-sitter's Safety Course")

Marks: Total 100 Possible

1. List eight things you should find out from parents before they leave

(1) _____
(2) _____
(3) _____
(4) _____
8 (5) _____
(6) _____
(7) _____
(8) _____

2. When is it important to have exact instructions in writing?

2 _____

3. List six characteristics of a good baby-sitter

(1) _____
(2) _____
3 (3) _____
(4) _____
(5) _____
(6) _____

4. a. In order of importance, state five things you should do if fire breaks out in the house where you are employed.

(1) _____
(2) _____
5 (3) _____
(4) _____
(5) _____

b. What two things would you do if a child's clothing catches fire?

- (1) _____
 2 (2) _____

c. If you think you smell smoke, should you try to locate the fire before phoning the Fire Department? Give reason for answer.

- Yes () No () Reason: _____
 2 _____

d. Name five things, found in nearly every home, which could be used to put out a SMALL fire.

- (1) _____
 (2) _____
 5 (3) _____
 (4) _____
 (5) _____

5 What two things should you do in each of the following examples?

a. If a child gets a small cut.

- (1) _____
 2 (2) _____

b. If a child starts to choke after swallowing a peanut.

- (1) _____
 2 (2) _____

c. If a child has a convulsion.

- (1) _____
 2 (2) _____

d. If a child seems sleepy or listless after a bump on the head.

- (1) _____
 2 (2) _____

e. If a child gets a slight burn.

- (1) _____
 2 (2) _____

6 If a child receives a severe electric shock;

a Explain some ways you could break contact safely.

4

b Tell where you would phone for help, and why

2

7 If an infant has a temper tantrum, what are two things should you do and two things you should not do

(1) You should

4

(2) You should

(3) You should not

(4) You should not

8 a When is it important for you to know some games or activities to amuse children?

(1)

3

(2)

(3)

b List ten things you think should be in your baby-sitters' kit

(1)

(6)

(2)

(7)

10

(3)

(8)

(4)

(9)

(5)

(10)

9 a What preparations should you make before bathing a baby?

3

- b. Why should you put a child in the tub at the end farthest from taps?

2

- c. What should you do if the phone rings while you are bathing a baby or young child?

2

10. List things often found in homes which might hurt or poison a child

- a. In a medicine cabinet (list five)

2½

- (1) _____ (4) _____
 (2) _____ (5) _____
 (3) _____

- b. Under the kitchen sink (list five)

2½

- (1) _____ (4) _____
 (2) _____ (5) _____
 (3) _____

11. Give your own explanation for the following statements about kitchen safety.

- a. A tablecloth that hangs over the edge of the table is not a good thing to use when there are small children around.

1

- b. You should always use a potholder when carrying hot dishes from stove to table.

1

- c. Liquid or grease spilled on the floor should be wiped up immediately.

1

- d. Handles of pots and pans on the stove should be turned toward the back of the stove.

1

- e. Hot dishes should always be put in the centre of the table.

1

12. What should you do in the following circumstances?

- a. A young toddler wants to play at the head of the stairs.

1

- b. Someone comes to the door and says they are a friend of the family and wants to come in to wait for their return.

1

- c. You find that your employer has used a thin plastic dry cleaning bag for a crib mattress cover.

1

- d. A child seems afraid of you when you are left alone with him/her.

1

- e. The gas furnace goes out.

1

- f. You hear a suspicious noise outside the house.

1

13. Suggest possible reasons for a child's behaviour in the following circumstances and tell how you would handle each problem.

- a. A five-year-old has been put to bed but continually comes out of his room or calls or cries for you to come to him. He seems to have no end of excuses for staying up late.

3

- b A very young baby awakens from her nap and will not stop crying no matter how kind you are to her.

3

14. State three things you should report to your employer when he/she returns.

3

15. Mark true or false for each of the following statements and give the reason for your answer.

- a. Even if your employer has agreed to take you home, you should let your parents know the address, phone number and name of employer, also time you expect to be home.

True () False () Reason: _____

1

- b. If a child is in bed and asleep when you arrive, you should close the bedroom door so that you will not awaken him.

True () False () Reason: _____

1

- c. If a baby squirms and fusses while you are changing a diaper, it is a good thing to give him a closed talcum powder tin to play with to keep him amused.

True () False () Reason: _____

1

- d. You should not leave a baby with a bottle propped up on a pillow even if you are busy with other children.

True () False () Reason: _____

1

- e. If there is a playground within two or three blocks of the house, you should suggest that the children go there to play while you get a meal ready for them.

True () False () Reason: _____

1

- f. You should read opened letters and bills and check desk drawers and cupboards to learn all you can about what kind of people your new employers are

True () False () Reason: _____

1

- g. If parents have left medicine or pills within reach of children, they are probably harmless

True () False () Reason: _____

1

- h. You should never lie down on a bed beside a small child, even if he is nervous and wakeful.

True () False () Reason: _____

1

THEME: Service that Makes a Difference
LEARNING ACTIVITY: Consumerism: Buying for Profit
GRADE (suggested): 9
TIME (suggested): 10-12 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the meaning of the term "buyer beware"
- recognize the strategies used to encourage consumer purchases

Skills:

- demonstrate "wise consumer" behaviour:
 - use comparative shopping strategies
 - recognize good and not-so-good buys
 - develop skill in knowing when not to accept unsatisfactory goods or services

Attitudes:

- appreciate the factors that determine consumer choice
- appreciate the value of comparative shopping

RESOURCES

Teacher Resources

TIPS Alberta Consumer and Corporate Affairs
CCA-05 160 Food Shopping Skills
CCA-05 164 Home Improvements: How to Hire a Contractor
CCA-05 165 Household Moving
CCA-05 178 Used Car Buying
CCA-05 183 Children's Allowances
CCA-05 190 Auto Repairs and Estimates

TEACHER BACKGROUND INFORMATION

This learning activity will enable students to acquire knowledge and develop skills and attitudes appropriate to the wise consumer. Although located in the theme "Service that Makes a Difference" and therefore related to the I.O.P. Personal and Public Services course, the learnings acquired in this activity are related to and transferable between each of the other two courses and their related themes that comprise the I.O.P. Practical Arts.

Teachers are encouraged to present the content of this learning activity in a context related to one or more of the eight occupational clusters:

- Agribusiness
- Business and Office Operations

- Construction and Fabrication
- Creative Arts
- Natural Resources
- Personal and Public Services
- Tourism and Hospitality
- Transportation

Similarly, teachers may wish to change the example provided in this learning activity and instead relate the topic to the current interests and consumer behaviours of the class.

CONSUMERISM

A CONSUMER is an individual who buys, not simply a person who uses. Everyone has different standards by which they judge when, what, how and why they will buy items. Where they will buy items may be a matter of choice, particularly in larger communities, but this is not always true in smaller communities.

CONSUMERISM can be defined as the process of determining the how, when, where, what and why of making a purchase.

There are many factors that go into making wise consumer choices, including experience with and knowledge of:

- products
- suppliers
- market prices
- seasonal sales

A PRODUCER is an individual or a group of individuals who grows or makes things that are consumed by others. A producer needs to be concerned with growing or making products and providing services that others will purchase, use and, hopefully, buy again.

Consumers need producers who will grow and make things and provide the products and services they need. Producers need consumers who will buy and use their products and services. Our economy depends, to a large extent, on the ability of producers to produce goods and provide services and the ability of consumers to buy the goods and services produced.

STUDENT ACTIVITIES

1. Have students:
 - a. Use a dictionary to define the term "ECONOMY"
 - b. Discuss the different ways in which producers and consumers are organized and managed in the market place:
 - supply and demand
 - consumer protection laws
 - product quality standards
 - return of substandard goods
 - c. Identify situations where consumers paid more than the basic value for a product and discuss the reasons. For example:
 - paying \$60 for a pair of designer jeans when the same jeans without the designer label can be purchased for \$40
 - paying \$20 for a T-shirt at a rock concert when a similar T-shirt can be purchased for \$10 at a local department store.

Community Partnerships

2. a. Have students chart the purchasing pattern of each member of the family during a one week period and categorize the purchases on the chart provided as Resource 1: "Family Food Purchase Chart".
- b. At the end of the week, when all purchases are charted, have each student identify
 - who spent the most money in one week
 - the category of goods or services on which the most money was spent
 - the family member who spent the most money
 - the family member who spent the least money.
- c. Have each student share their family's consumer behaviour chart in an attempt to generalize the consumer behaviours of males, females, teenagers, etc.

FACTORS INFLUENCING CONSUMER CHOICES

Purchasing decisions are influenced by one or more of the following factors:

Advertising	Fashion
Custom	Habit
Desire to Be Like Others	Income
Desire to Impress Others	Personal Values

Income

Income, or the amount of money available for spending, has an important bearing on consumer choices. The more money people have to spend, the more goods and services they can buy. Most people satisfy their essential "needs" before their "wants". For example, a student may spend money on transportation (e.g., bus fare, bicycle or car repair) before entertainment.

Personal Values

Values, or what people consider important, vary with each individual. One person may value reading as an interest or hobby, while another may value skiing.

Fashion

Fashion dictates hairstyles, clothing styles, colours, and activities. Keeping up with fads often leads to wasteful or unwise choices. Clothing no longer in style may be discarded before it is worn out.

Custom

Customs exist and vary in families, religions, communities, and nations, and play a part in consumer choice. Following custom may be easier than making an independent decision.

Habit

Consumers also buy items out of habit. They may continue a consumer habit without considering their options or shopping around for best buys.

Advertising

Manufacturers attempt to persuade consumers to purchase what has been produced through advertising. The purpose of advertising is to attract attention and create a demand for the goods or services. Generally, advertising is designed to promote a particular brand name rather than a generic product.

STUDENT ACTIVITIES

1. Brainstorm to identify the factors that motivate students to purchase a certain brand of clothes, specific recordings, type of bicycle, etc.
2. Discuss:
"What does it mean 'to be in fashion'?"
"Where do personal values come from?"
"What do producers do to create or change fashions? Why?"
"How can bad consumer habits be changed?"
3. Have each student rank order the items shown in the chart below to compile a composite "picture" of the factors that have the greatest influence on his or her consumer behaviour.

Influencing Factor	Priority
Advertising	
Custom	
Fashion	
Habit	
Income	
Personal Values	

Rank each factor with a number from 1-6

4. Discuss:
"Would this kind of information be useful to producers? Why?"
"What might a producer do with this kind of information?"

DETERMINING WHAT TO BUY

Assuming that a person has already made the decision to purchase a particular item, selection involves such factors as:

- price of an item
- whether to purchase a new or used item
- cost of care and upkeep
- cost of repair
- safety
- the reputation of the store and manufacturer

COST OF AN ITEM

Everyone should have a particular price range in mind when they decide to make a purchase. This is most often determined by the amount of money or disposable income that is available. The first rule then is to **STAY WITHIN THE PRICE RANGE**.

Let's say, for example, that a person is going to buy a pair of skis. Ski prices may range from \$150 to over \$500. What does the difference in price represent? Will a consumer get a better pair of skis for \$500 than he or she would for \$150?

Brand Name - Some skis are higher priced because of the manufacturer. You will have to pay more for a well-known brand name pair of skis than you will for a lesser-known brand.

Quality - Some skis are made of better materials or have better performance because of the design. In this case, the price will obviously be higher. The anticipated amount of use should also be considered when assessing the quality of an item.

Supply and Demand - Some manufacturers only make a small number of skis in each year. These will cost more than those of a manufacturer who floods the market with large quantities of mass-produced skis.

Features - Some skis come with bindings that may be custom-fit at the store. These will cost more than those sold by a department store that may not have staff qualified to make the necessary adjustments, and you may have to pay to have them done elsewhere. This will increase the price substantially.

USED ITEMS

The alternative to purchasing new items is for a consumer to purchase used items in good condition. It is often possible for a careful consumer to obtain a used item with a brand name, of high quality, at an affordable price.

The main sources of secondhand articles are listed in the Yellow Pages and Purple Pages of the telephone book under the following headings:

- Auctioneers
- Junk Dealers
- Pawnbrokers
- Secondhand Stores
- Thrift Shops, etc.

Classified advertisements in local newspapers also identify sources of used items under the following headings:

- Sales
- Flea Markets
- Garage Sales
- Exchanges

Before purchasing a used item, consider the following:

- How much are you saving?
- How worn or damaged is the item?
- How much would it cost to repair the item?
- Will it operate as expected?
- Does it matter that the warranty has expired?

THE COST OF CARE AND UPKEEP

The initial cost of an item may be only the tip of the iceberg. Let's consider, for example, a motorbike. Beyond the initial cost, the following factors must be considered:

Regular Maintenance - What would it cost to provide regular maintenance items such as gasoline, oil, tires, chains, lights, registration and insurance?

Storage - Do you have a place to store the motorbike? If not, would you have to provide storage at extra cost?

Hidden Costs - You have to buy a helmet, not only for yourself, but probably for a passenger, if you intend to carry someone with you.

COST OF REPAIR - Repair costs vary greatly from manufacturer to manufacturer. Some factors to consider are:

Cost of Replacement Parts - What parts are liable to wear out? What will the replacement parts cost?

Labour Costs - Can I repair it myself? If not, what does the company charge to repair it?

Hidden Costs - Is there a flat fee just for estimating repairs, even if repairs are not made? Does the company charge for shipping if the part has to come from elsewhere?

Time Factors - Are parts readily available? Will you have to wait for weeks or months? Does the item have to be shipped away for repair, or can repairs be done locally?

SAFETY FACTORS

When purchasing certain types of items, it is important to consider the safety factors of the product. For example, ski bindings vary greatly from one manufacturer to another. Some are much safer to use than others.

- When purchasing a motorbike it is important to consider such items as:
 - quality of the braking system
 - steering control
 - smooth surface finishes that will not cause injury in the event of a fall
 - the adequacy of the lighting system
 - the location and type of foot pegs, etc.

THE REPUTATION OF THE STORE AND MANUFACTURER

Prices of a particular brand name item may differ greatly from one store to another. Different brand names of a similar product may also differ widely from one manufacturer to another.

Some things to consider are:

Is the store reputable? - Is the store known for dealing fairly with customer complaints?

Does the store back what it sells? - Does it simply direct you to the manufacturer in the event of problems?

Does the store have a reputation for fair and accurate pricing? - Some stores will advertise a particular item far below the cost of the same item in another store. When you go to purchase the item, you may find that it is a single demonstrator item that was sold long before you arrived or an item with missing parts or features that are standard on the same item at another store.

Is the manufacturer reputable? - Is the manufacturer known for producing quality products and dealing with customers in a fair and responsible manner?

Has the manufacturer been in business long? - Is it simply a quick-sale scheme operated from a post office box or suite number?

STUDENT ACTIVITIES

1. Have the class select a particular item that they would consider buying and "guestimate" a reasonable price range. Once this is determined, have students research costs through advertisements or by visiting local stores to determine what is available in their price range.
2. Have students select new items from a catalogue and compare the savings of an identical used item listed in a newspaper.
3. Have the class select a particular item (for example, a stereo) and determine the hidden costs; e.g., records and tapes, cartridges, cleaners, batteries (if portable).
4. Have the class select an item that can be repaired locally and research repair costs for a specific type of repair. For example, determine the cost of replacing the recording head on a particular popular brand of VCR, or a clutch assembly on a popular brand of motorbike.
5. Have the class select a particular product that has safety factors associated with it. Have them research different makes and models of the product to develop a safety comparison.
6. Have the students search through newspaper advertisements for prices on a specific item (VCR, stereo, computer) that is being sold at a vastly reduced price. Ask them to determine why the particular product is being sold at such a low price, and whether or not it would be worth purchasing, knowing the conditions of sale.
7. Have students use the school and community libraries to identify consumer guides and have them discuss the value of these guides.

Community Partnerships

8. Invite a representative from a consumer protection agency to discuss consumer behaviour with the class, e.g.:
 - Alberta Consumer and Corporate Affairs
 - Consumers Association of Canada (Alberta Branches)
 - Alberta Motor Association
 - Canadian Automobile Association.

KNOWING THE MARKETPLACE

Knowing the marketplace consists of three main areas:

- A. When to buy
- B. Where to buy
- C. Whether to buy a new or a used product

A. WHEN TO BUY - TIMING THE PURCHASE

Many goods are of a seasonal nature - for example skis in the winter, bicycles in the summer. The timing of these purchases is fairly important if one wishes to make the "best buy" possible. Some things to consider are:

Off-Season Sales - Goods (such as skis) can frequently be purchased during the "off-season" at substantial savings.

Year End (Seasonal) Clearance Sales - At the end of the ski season, ski shops may sell their remaining merchandise at reduced prices.

Limited Choice - Off-season or year-end clearance sales may provide a large reduction in price, but they also produce a diminished selection for the prospective buyer. People will often end up buying a particular brand that was not one of their first choices, simply because of the price.

Limited Service - Because some products are seasonal in nature, the sales people and the people who service the products may be employed only during the "on season". This may lead to a situation where one is dealing with unqualified personnel.

B. WHERE TO BUY

Once a particular brand of product has been selected, the next step is to determine where to make the purchase. The marketplace has many types of outlets which may sell similar products. For example, consider cassette tape recordings:

Record Stores - usually provide the greatest selection. Prices are normally fixed but the store may have occasional sale items to entice customers to come into their store. Often, they won't have too many copies of one particular item unless it's a fast-selling recording.

Major Department Stores - provide a reasonably good selection. The prices may be lower than the record store because they buy fewer separate items, but a large number of the same item. The selection is usually not as good as the record store and you may have to go to several different stores to find the recording you want.

Convenience Stores - many local "corner stores" sell a small selection of audio tapes. The selection is usually very limited and the price is usually higher. Another thing to watch for with "corner stores" are recordings that appear to be the original artists, but are in fact recordings made by someone else.

C. WHETHER TO BUY A "NEW" PRODUCT

New products present special problems for the consumer. The two most common product areas in which "new" products are constantly being introduced are clothing and electronics. When considering buying clothing, the following factors should be considered:

Current Fads - may dictate the types of clothing one is considering buying. It must be kept in mind that fads have a way of ending very abruptly - and you may be stuck with an entire wardrobe of items that you can no longer wear comfortably because they're no longer in style.

Price - is often directly related to the current fad or fashion trend. This must be taken into account. Even shoddy merchandise will command a fairly high price when it is in fashion. If a person's budget is limited, it may be advisable to stay with the more common types of clothing items which aren't directly tied to current fads.

Practicality - is the new item of clothing easy to maintain? If a suede item is currently in fashion, it must be remembered that suede is neither easy nor cheap to clean and maintain.

When purchasing electronic products, two additional considerations are:

Changes in Technology - produce rapid changes in what is available. The item you purchase today may be obsolete tomorrow.

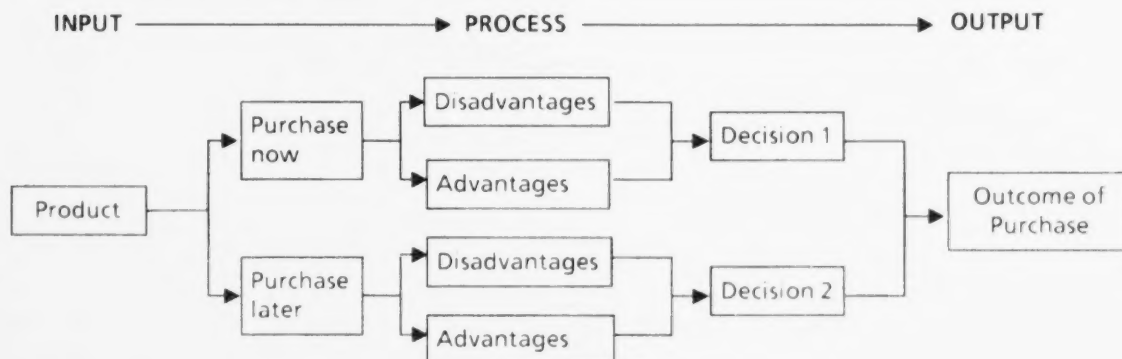
Changes in Price - occur frequently and rapidly in the electronics field. Consider the prices of things like calculators, VCRs, computers, electronic games, video cameras, and CD players. All of these items have been drastically reduced in price over a short period of time.

STUDENT ACTIVITIES

1. Have students select and examine pricing and availability of goods or items that are currently in "off-season". Have them compare this to the normal "on season" prices and selection.
 - garden tools and equipment
 - clothing
 - sports equipment
 - garden furniture.
2. Have students select a product having a particular brand name. Once they have made the selection (for example, a VCR), have them look at all the different types of stores that may sell this particular item and make a comparative shopping chart to determine where the best buy and service may be available. For example:

Comparative Shopping Chart for VCR				
Store	Brand	Cost	Features	After Sales Service

3. Have students select an item of clothing or an electronic product that is currently in demand, assess whether or not it would be a good time to buy the product, and list the advantages and disadvantages of waiting for a period of time before purchasing. Have students draw a map to show alternative decision-making paths.



ADVERTISING

Advertising is intended to:

- introduce new products
- demonstrate new or additional uses for a product
- meet competition
- expand the market to include people who did not previously use a particular type or brand of product
- enhance a company's image
- increase consumption by present users.

Advertising is aimed at particular:

- Age levels - Alcohol ads are not aimed at small children, and toy ads are not aimed at adults
- Economic levels - The Mercedes ads are not aimed at the blue-collar worker, and the pickup truck ads are not aimed at the business executive.

Advertising can be analyzed in terms of:

- use of pictures
- use of colours
- use of shapes
- use of language
- emotional responses.

Use of Pictures

The use of photographs is very important in advertising. These serve two purposes:

- Show the Product - The product is shown through the use of photographs. This provides information to the consumer about the product.
- Demonstrate the Product - The product is demonstrated through the use of photographs. This provides information about how to use the product.

It should be kept in mind that:

- photographs may be "touched up" to cover visible flaws in a product
- special lenses may be used that make the product look smaller or larger than the actual item
- items associated with the product in the photograph may not be included as standard items with the product. For example, car ads will show the car with numerous expensive options such as special paint and wheel covers which are additional cost items
- the picture is designed to catch the viewer's attention. The photograph may have little (or nothing) to do with the product being sold. It is simply there to catch your attention and make you want to read or listen to the ad.

Use of Colours

Colour plays an important part in advertising:

- Bright colours produce a feeling of fun and youthfulness. For example, in car ads stressing that a particular type of car is "fun to drive", the car is usually red.
- Black may be used extensively to produce a feeling of richness and quality. It is often used in ads for very expensive cars or perfumes.
- Black is a colour associated with elements of power. Car ads which aim to induce the feeling of power will often portray a black car, usually in twilight or misty surroundings.
- Dark colours are used to sell products the advertisers want to be taken seriously; for example stocks, bonds, investments or professional services.

Use of Shapes

The use of shapes in advertising can affect the way that the viewer feels about the product.

For example, portraying a car against a background of rugged, sharply angular mountains will produce a feeling of power and durability about the car.

Showing the same car surrounded by softer objects, balloons for example, would produce a feeling that the car had a smooth ride and was fun to drive.

Using curves and angles can lead the viewer's eye to various elements in the picture. For example, two converging lines on a page always lead the viewer to the point where the lines will eventually intersect. This is the point at which the most important information about the product will be displayed.

Use of Language

The type of language used (volume, tone, vocabulary) in an advertisement or commercial greatly affects how the commercial is received. An example is the simple but effective words and phrases used in the "Fiberglass Pink" commercials where the tone and word usage are used very effectively to catch viewers' attention.

The level of language used depends on the products being sold. You would expect a simpler level of language in a toy commercial aimed at small children than in a Mercedes-Benz commercial aimed at a business executive or professional person.

Music is another form of expression that can affect how a commercial is received. A prime example is the "Cola Wars" with the use of people like Michael Jackson and Whitney Houston as representatives. Music is used to create a mood and often carefully selected sound effects reinforce the creation of the mood desired by the advertiser.

Emotional Response

Many commercials and advertisements rely on emotional responses to sell the product.

For example:

Telephone Ads - Attempt to produce a strong emotional response from viewers to entice them to use the long distance telephone service to keep in touch with family and friends.

Car Ads - Often use physically attractive people in their ads. This makes the viewer feel that if they owned this product, they, too, would appear attractive or impress others by owning the product.

STUDENT ACTIVITIES

1. Have students analyze print and videotapes of selected commercials to determine the purpose of the photographs or drawings used in the advertisement. Have students determine which ones they feel are the most effective and state why.
2. Have students view videotaped commercials and printed advertisements from magazines to analyze the use of colour in the commercial or ad. Determine if the use of colour is effective.

3. Have the students view and collect advertisements that have clearly defined shapes in them. Analyze the purpose of the shapes used in the pictures and determine whether or not they feel they were used effectively.
4. Have students examine the language and music used in various commercials on the radio or television to determine whether or not these are appropriately and effectively used.
5. Videotape for student viewing selected ads which attempt to elicit strong emotional responses - for example, long distance telephone ads, car ads, and advertisements soliciting donations to charities. Have students categorize each ad's appeal by age group.

The Producer

Producers are individuals or groups who grow, make things or provide services that others will buy.

Every producer needs consumers in order to stay in business. The major tasks of every producer are to:

- identify consumer needs and wants
- create new consumer needs and wants
- be aware of competitive products and services
- produce something or provide a service that consumers will purchase.

Both the entrepreneur, the small business person, and the large corporations need to be concerned with these tasks.

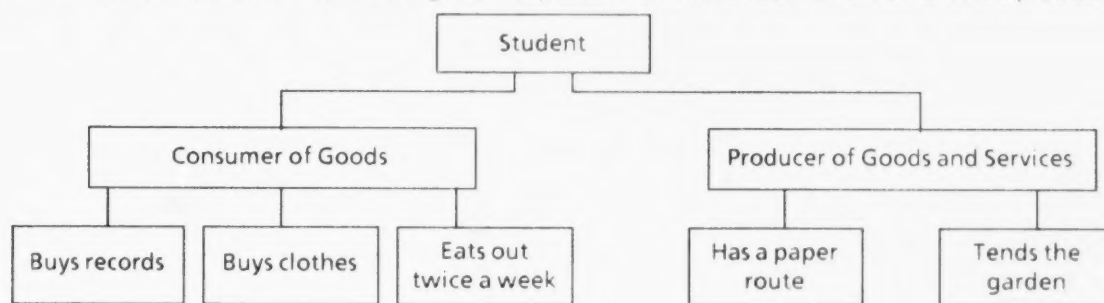
STUDENT ACTIVITIES

1. Have students work in small groups and
 - a. identify a product the group could make or a service it could provide
 - b. identify consumer needs and wants for the product or service by surveying (telephone, written, face-to-face) a sample of an intended target group of consumers
 - c. identify other existing producers of similar products or services
 - d. determine the cost of producing the product or providing the service
 - e. calculate a selling price that will provide various profit margins (10%, 14%, 20% etc.)

Note: All or part of this student activity should be planned in cooperation with other teachers to facilitate an integrated instructional strategy and, possibly, the actual production and marketing of a product or service.

2. Discuss:
 - "Why do some people prefer to be entrepreneurs rather than employees?"
 - "Using what you have learned in this activity, what are some of the disadvantages of being in business for oneself?"

3. Have students draw a map showing their respective activities as both a consumer and a producer.



4. Discuss:

"Will being a wise consumer help a person to be a good entrepreneur? How?"

"Is a successful self-employed person usually a wise consumer? Why?"

Community Partnership

5. Invite a local small business operator to discuss the pros and cons of being self-employed.

FAMILY FOOD PURCHASE CHART

Family Purchases Chart for the Period _____ to _____ (one week period)

CONSUMER	CATEGORY AND COST OF PURCHASE									
	Food	\$	Clothing	\$	Shelter	\$	Entertainment	\$	Services*	\$

*Services include: haircuts, beauty services, housecleaning, legal services, music/dance lessons, etc

Resource 1

THEME: Service that Makes a Difference
LEARNING ACTIVITY: Party Time
GRADE (suggested): 9
TIME (suggested): 18-20 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- apply the basic principles of safe and sanitary food handling to specific food preparation tasks
- plan and organize a party or gathering for which food is purchased, prepared and served

Skills:

- demonstrate the ability to plan, organize and evaluate an event
- assemble necessary materials to prepare, produce and service food
- adjust a recipe to suit the number of people to be served

Attitudes:

- recognize the role of systematic planning in organizing an event
- demonstrate the ability to cooperate with others

RESOURCES

Students Resources

Creative Living, Canadian ed. Don Mills, Ontario: Collier MacMillan Canada Inc., 1985.

"Food Shopping Skills" *TIPS*, Alberta Consumer and Corporate Affairs.

Teacher Resources

Creative Living, Teacher's Resource Book, Canadian ed. Don Mills, Ontario: Collier MacMillan Canada Inc., 1986.

Creative Living, Teacher's Annotated Edition, Canadian ed. Don Mills, Ontario: Collier MacMillan Canada Inc., 1985.

Additional resources may be obtained from:

Alberta Consumer and Corporate Affairs
Health and Welfare Canada

TEACHER BACKGROUND INFORMATION

This learning activity provides students with the opportunity to develop concepts, skills and attitudes that they can relate to the food preparation and food service industries. In addition, this learning activity provides students with the opportunity to demonstrate the ability to:

- be "wise" consumers (Refer also to the Learning Activity "Consumerism: Buying for Pleasure")
- organize and plan
- work cooperatively with others.

The content of this learning activity relates directly to the Personal and Public Services and Tourism and Hospitality occupational clusters. The components of this learning activity include making decisions about:

- what needs doing?
- when will things get done?
- who is to do what?
- how will the outcome be evaluated?

The concepts, skills and attitudes students develop as a result of participating in this activity are transferable to careers within the other six occupational clusters.

This activity may be developed in a number of ways. For example, by planning and organizing:

- a birthday or other party at the home of a student
- a reception in the school to thank community partners for their participation in the school's learning activities
- a breakfast, luncheon or dinner for parents, staff and other students
- a banquet as part of a school's homecoming activities
- a dinner-theatre activity in conjunction with the school's drama class
- a sports or awards dinner.

The teacher, in consultation with the students should determine the context for the learning activity. If, for example, the decision is made for each student to participate in planning a birthday party, a scenario similar to the one below may be established and the student activities performed in that context.

PLANNING A PARTY

Imagine that you are about to celebrate your birthday. You'd like to take a few friends with you to a movie. You have \$25.00 to spend. With the cost of the movie and bus fare to and from the theatre, you find that you will be able to invite three friends, but that will only leave you about \$4.00 for food after the movie. School ends at 3:30, and the movie is at 7:00. This means that you will have to come home after school, prepare a meal, and be ready to leave for the movie before 6:30. Your parents won't be home until 5:30, so they won't be able to help you prepare the meal.

You will have to decide what you want to eat, find the recipes needed to make it, and find out how much the ingredients will cost. Your parents told you that they will supply the groceries, if you let them know what you need and approximately how much it will cost.

After you have done the planning, you will be preparing the sample menu.

An alternative scenario might involve preparing and serving a breakfast as part of a joint practical arts event.

BREAKFAST BASH

The local winter/spring festival provides an excellent opportunity for students in the practical arts program to show their skills. The technical/occupational students are going to display projects they have made; the business education students are going to help design, keyboard, and mail invitations; and the teachers and students presently in personal and public services, (that's us!) are going to put on a breakfast. Parents, community members, teachers and students from the local high school are going to be invited. There will be a charge of \$2.00 per person for the breakfast.

The date of the event is March 15th. The breakfast will be served between 0800 - 0900 hrs. Your job is to plan the menu, help design the invitations, find the recipes needed to prepare the food, buy the food and make certain that the cost of all ingredients can be covered by the \$2.00 per person collected in advance from all those wanting to attend. In addition, you will be responsible for serving the food and cleaning up afterwards.

PLANNING THE PROJECT

1 What needs doing?

The first part of this learning activity is to have students use a decision-making/problem-solving process to:

- a. define the project they want to be involved with
- b. consider the various tasks, that need to be done
- c. consider alternative ways of getting the task done

2 When will things get done?

As a part of the decision-making/problem-solving process, students will have to determine:

- a. the date of the event(s)
- b. by what dates invitations, foods purchases and other organizational tasks need to be completed

3 Who will get things done?

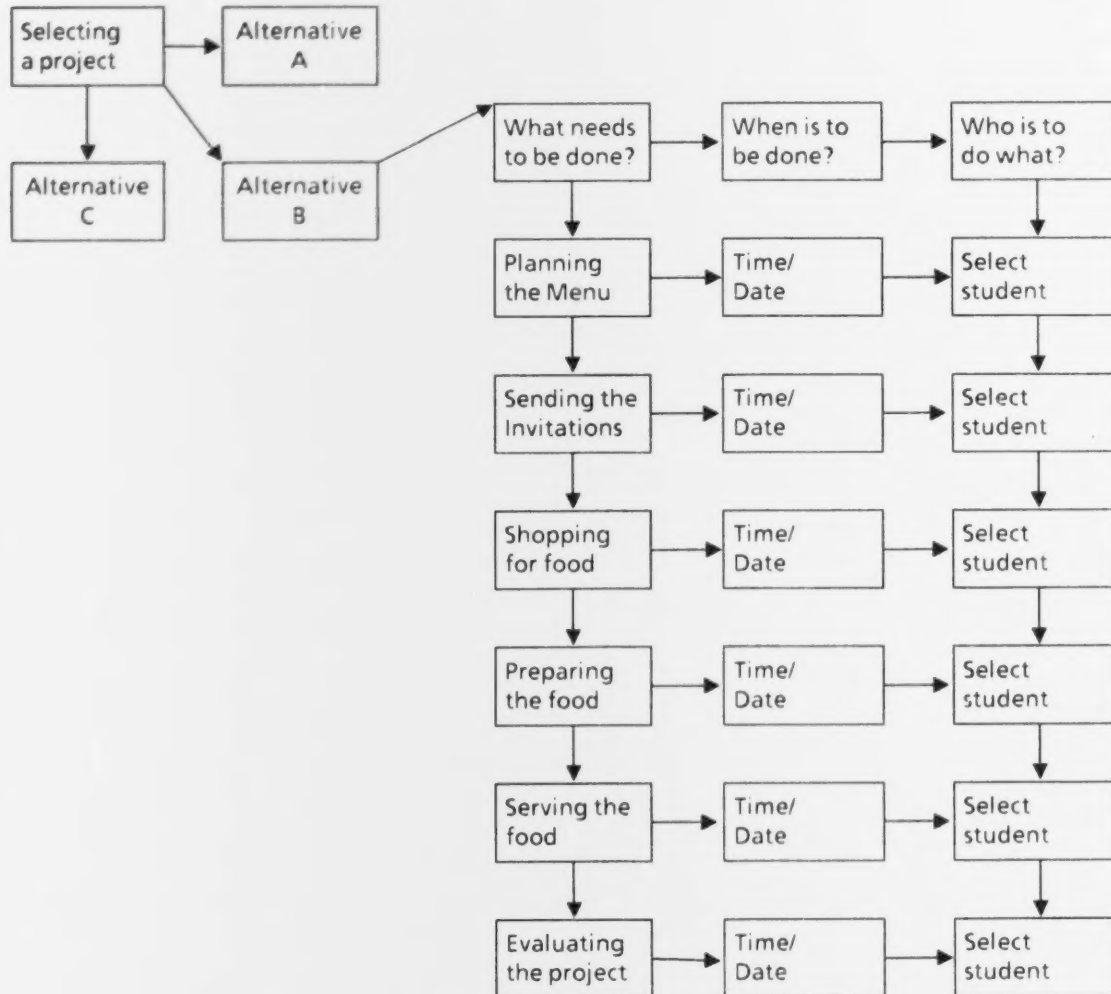
Another aspect of the initial decision-making/problem-solving process is to decide whether:

- the whole class will become involved in a single project
- students will plan, organize and evaluate the outcomes individually
- students will work in small groups on group-selected projects

(The teacher's approval of alternative suggestions may be determined by number of students in the class, timelines, facilities available, and other related variables.)

STUDENT ACTIVITIES

1. Involve students in the preliminary decision-making process. Have students:
 - brainstorm to obtain a list of projects
 - consider the feasibility of each project and eliminate those not readily achievable
 - determine by consensus or by majority vote whether to engage in one cooperative project, several group projects or individual projects (subject to the teacher's approval).
2. Have students draw an outline plan to show the project selection process, the tasks to be performed, the timelines and the person(s) responsible for each task.



3. Have student establish an itemized budget for their project. If persons attending are to be charged, it is necessary to estimate the number of people who will attend. Discuss ways in which it might be possible to make an educated guess as to number of persons who might attend, (e.g., sampling, surveying, parental contacts, networking).

ITEM	AMOUNT NEEDED	ESTIMATED COST	ACTUAL COST
Invitations			
Stamps			
Food • milk products • meat products • fruits/vegetables • cereals			
Beverages			
Decorations			
Serviettes, etc.			
Additional items			
TOTAL			

MENU PLANNING

The menu planned for any meal or event is usually a matter of choice. Favourite foods, age, culture and ethnic origin of participants will affect menu choices.

Using the basic rules of nutrition found in the Canada's Food Guide, each meal should contain at least one representative food from each of the four food groups:

- milk and milk products
- vegetables and fruit
- cereals
- meat or meat alternatives

General menu patterns may include:

Breakfast	Lunch	Dinner
fruit or fruit juice whole grain cereal meat product bread beverage	Main Dish (Soup, casserole or sandwich) vegetable (fresh or cooked) bread dessert beverage	meat or alternate potato vegetable dessert beverage

Suggestions in Canada's Food Guide	Breakfast	Lunch or Supper	Dinner
Milk (for beverage and cooking)	X	X	X
Fruit: citrus fruit other fruit	X X	- X	- -
Vegetables: potatoes other vegetables	- -	- X	X X
Cereals and bread: whole-grain cereal bread	X X	- X	- -
Meat or meat alternates	-	-	X
Eggs and cheese (each 3 times weekly)	-	X	-
Vitamin D preparation	X	-	-

Menu planning for snacks and receptions should follow similar rules by including such food items as:

Nuts
Raw vegetables
Juices
Milk
Bread, buns, crackers
Fresh fruit

(Sample menu items and recipes are included in this learning activity. See Resource 1: "Sample Menus".)

When planning the menu the following guidelines should be kept in mind:

- keep it simple
- use foods that can be easily prepared
- use foods that students know how to prepare
- choose foods that the majority of people will eat
- use foods that will provide colour contrast on a plate and on the table
- keep the guest list to a manageable number
- plan and keep to a time line

STUDENT ACTIVITIES

1. Have students plan the menu for their project, applying the basic rules of nutrition. The menu for each project should be neatly written or keyboarded and posted in the lab.
2. Discuss alternative foods for each food group. Have students consider:
 - seasonal availability of food
 - cost in relation to budget
 - care and preparation - Does a food need preparation or can it be used as purchased? Does it need cooking or simply heating? Can it be prepared well ahead of the event, or must it be made just before the event?
 - manpower needs, if a great deal of preparation or cooking is required.

Community Partnerships

3. Have students consult with a community partner. Invite a chef, cook or restaurateur from local food operations to act as a mentor for the project(s). Parental support and assistance may also be sought by students.
4. Have students make personal contact by letter, by telephone, or in writing to solicit the assistance of a mentor.

Invitations

Depending upon the project and the number of people invited, the invitations may be handwritten or keyboarded by:

- an individual student
- a group of students
- one student acting as a liaison with a business education class.

The invitation should include the following information:

- the reason for the event
- the location
- the time/date
- types of dress (formal, semi-formal, informal)
- cost (if any)
- R.S.V.P.

You Are Invited
to
A Breakfast Bash
Organized by the Practical Arts
Students at XYZ School

8 a.m. - 9 a.m.
Tuesday, March 15, 19__

Dress: Casual
R.S.V.P.
John or Betty
XYZ School

Cost: \$2.00 person

STUDENT ACTIVITIES

1. **Design** - Have students design invitations. Have them consider:
 - a. the appearance of the invitation:
 - size
 - colour
 - amount of information.
 - b. how the invitations are to be delivered (consider costs):
 - by mail
 - by hand
 - alternatives (advertisement in the local newspaper; sent out with a report card).
2. **Preparation** - Have one or more students prepare the handwritten or keyboarded invitations individually or work cooperatively with the I.O.P. Business Education class to produce the invitations.
3. **Delivery** - Where possible, students may be encouraged to hand-deliver invitations to community partners. Have students discuss and record the advantages and disadvantages of various methods of delivering invitations.

Method of Delivery	Advantages	Disadvantages
By mail		
By hand		
Advertisement in local paper		
Other		

If a large number of invitations are to be mailed, contact with the post office should be made by a student to check the cheapest way to mail invitations and the estimated time for invitations to reach their destination.

Shopping for Food

A variety of strategies may be used to shop for food:

- direct contact with suppliers by assigned student(s)
- bulk purchases by the teacher
- involvement of community partners in mentorship role

The nature of the project will determine purchasing strategy adopted; however, in all cases, students should be involved in estimating the amount of food/cost of food required

STUDENT ACTIVITIES

1. Prior to shopping, have students read "Food Shopping Skills" a TIPS sheet published by Alberta Consumer and Corporate Affairs.
2. Have students use Resource 2: "Grocery Worksheet" to estimate the amount and cost of food required.

Community Partnerships

3. Have students visit retail and wholesale grocery suppliers, observe each operation and compare and chart wholesale prices to retail prices

Preparing the Food

Some easy to prepare items and recipes are included in Resource 3: "Sample Menus". The teacher should:

- provide students with other written recipes and/or encourage students to use their research skills to find suitable recipes
- ensure that students observe the basic principles of safety and sanitation when in the kitchen and when handling food.

Students should:

- receive instruction in how to prepare and cook each item on the menu prior to the actual preparation for the project event
- be required to adjust recipes to suit the number of persons being fed.

SERVING THE FOOD

Presenting the eating area and the food in a way that is both attractive and an invitation to the guests to eat is called "SERVICE". Two of the more commonly used types of service are:

- buffet service
- table service.

A birthday party may involve buffet service. In buffet service, care is taken to place individual items of each course on plates or platters to create a "picture". The food should, therefore:

- look good
- smell good
- taste good.

Buffet service is often used at birthday parties or receptions. The food is placed on a table and guests are invited to help themselves. The gracious host or hostess may carry the first plate of appetizer foods around to each guest and tell them, "Please help yourself, the food is on the table. I hope you enjoy it".

When using an informal form of service, plates, cutlery, and napkins are usually placed near the food at one end of the serving table.

Table Service

Table service is a more formal type of service. In the food service occupations, the term "cover" is used when linen, flatware, dinnerware and glassware are used to "set" a table. If four people are to be seated at a table, four covers will be set.

The major requirements to set each cover include:

- a tablecloth or place mat (the place mat should measure approximately 36cm x 51 cm)
- a napkin
- knife, fork, spoon and other flatware as required.

General rules for setting a table include:

- allow 51-61 cm for each person
- place the flatware at each cover 2-5 cm in from the edge of the table. All flatware should be perpendicular or horizontal to the edge of the table.
 - the knife is placed at the right of the plate with the sharp edge turned toward the plate
 - the fork is placed at the left of the plate, with tines up
 - additional pieces of flatware are placed in order of use, with pieces to be used first on the outside
- the kind and number of dishes will depend on the menu
- the plate of food is always placed on the centre of the cover
- the side plate for bread is placed at the left of the plate
- the beverage glass is placed at the tip of the knife
- a set of salt and pepper shakers is placed on the table for every two people.

Although table service is more formal than buffet service, there are many varieties of table service. In a very formal type of service, each item of food may be placed on a person's plate by the server, the waiter or waitress. In a less formal style of table service, dishes of food are placed on a set table and guests help themselves.

Decorating the Food and the Table

Good cooks and good service staff know that the way food looks and the way that it is served are just as important to how the food tastes. To make food look more attractive, garnishes are used. Garnishes are items used to "dress up" the appearance of various foods. Garnishing is an art form that is learned through practice. Garnishing guidelines include:

- garnishes should be edible (Note: many restaurants use flowers to decorate cakes, etc.)
- the flavour must blend with the other foods
- leftovers can be utilized as attractive garnishes (e.g., ham, cheese, etc.)
- keep it simple
- use the natural colour of the food to create pictures, e.g., a vegetable plate can be set up very colourfully by setting contrasting coloured vegetables side-by-side
- keep the garnishes small enough so they don't overwhelm the rest of the food
- use correct types (e.g., don't put crisp vegetables on a hot-dish; they will wilt)
- cut finger food items into interesting shapes.

The buffet table or the table at which covers are set can be made more attractive by using a floral display or some other centrepiece.

STUDENT ACTIVITIES

1. Have students practise
 - setting covers
 - decorating a table
2. Have students create garnishes by using flowers, a variety of raw vegetables and other foods.

3. Have students practise providing formal table service to their peers and others. Include practice in clearing tables and dishwashing.

Community Partnerships

4. Have students visit a variety of food service operations (e.g., cafeterias, family restaurants, coffee shops, fine dining rooms). Have them identify, name and compare the different ways that food is served.
5. Invite a waiter or waitress to demonstrate service techniques including the setting of different covers for different meals.

EVALUATING THE PROJECT

Use Resource 4: "Project Evaluation Sheet" to evaluate this learning activity at each of its stages:

- project selection
- task identification
- menu planning
- preparing and distributing invitations
- shopping for food
- preparing the food
- serving the food

There are many stages at which "success" may be beyond the students' control; however, by having students formally assess their personal efforts and the overall efforts of their team, each student should be able to build a considerable amount of self-esteem and self-confidence.

STUDENT ACTIVITIES

1. Upon completion of Resource 4: "Project Evaluation Sheet" have students:
 - a. suggest ways in which each stage of the project could have been improved
 - b. discuss what they would do differently next time. Why? How?

Community Partnerships

2. Have students explore the possibility of part-time employment in the food industry in such areas as:
 - cooking
 - serving
 - entrepreneurial activities (e.g., organizing, cooking and serving at home parties).

SAMPLE MENUS

PARTY MENU

Appetizers

Nuts and Bolts Vegetable tray

Devilled eggs

Main Course

Lasagna

Beverages

Punch Lemonade

Desserts

Ice cream cone cakes
Popcorn balls

BREAKFAST MENU

Appetizers

Juice - Fruit/Vegetable

Main Course

Pancakes and syrup
Ham/bacon/sausage

Beverages

Coffee Milk

Desserts

Cakes Cookies

GROCERY WORKSHEET

Category	Food	Unit Cost	Amount No./Weight	Total Cost
Meat or Substitute				
Milk or Dairy Products				
Fruit or Vegetable				
Baking Items				
Other				
TOTAL				

PARTY MENU FARE

APPETIZERS:

NUTS AND BOLTS (Serves 6 people)

500 ml	Shreddies (or other cereals)
500 ml	Cheerios
250 ml	Salted peanuts
250 ml	Pretzel sticks
75 ml	Cooking oil
2 ml	Celery salt
5 ml	Garlic salt
2 ml	Onion salt
15 ml	Worcestershire sauce

1. Combine the cereals, peanuts and pretzels in a large cake pan or roaster.
2. Sprinkle the oil over the mixture. Add the seasonings and mix well.
3. Bake one hour at 120°C, stirring about every 10 to 15 minutes to prevent burning.
4. When browned, remove from oven and then cool and store in an airtight container until needed.

SWEET AND SOUR RADISHES (Allow three items per person)

Use small, whole red radishes. Prepare a dip made of whipped cream seasoned with salt and vinegar. Serve the dip and radishes chilled.

Dipping vegetables

- cherry tomatoes (with dip)
- vegetable (carrot, broccoli) sticks (with dip)
- meat cubes
- cheese cubes
- hard-boiled eggs
- fruit

Celery Toppings

- peanut butter (and raisins)
- cottage cheese
- devilled ham
- tuna salad
- salmon paste
- sour cream dip

DEVILLED EGGS (Serves 6 people)

- 6 hard-boiled eggs
- 25 ml mayonnaise
- 0.5 ml mustard
- 0.5 ml relish (or chopped sweet pickles)
- 0.5 ml salt
- 0.5 ml pepper
- 0.5 ml paprika

1. Boil the eggs and cool them. Peel them and slice them in half lengthwise and remove the yolk.
2. Mix the yolk, mayonnaise, mustard, relish, salt and pepper together to form a paste.
3. Refill the cooked egg whites with the mixture.
4. Sprinkle lightly with paprika.
5. Cover and refrigerate.

MAIN COURSE:**LASAGNA** (Serves 4 people)

- 300 g ground beef
- 1 clove garlic, minced
- 10 ml whole basil leaves
- 5 ml oregano
- 125 ml canned tomatoes
- 125 ml tomato sauce
- 4 lasagna noodles
- 1 egg
- 250 ml cottage cheese
- 50 ml parmesan cheese
- 15 ml parsley flakes
- 75 ml grated mozzarella cheese
- salt and pepper to taste

1. Brown beef slowly, drain off excess fat.
2. Add garlic, basil, oregano, tomatoes and tomato sauce.
3. Simmer uncovered about 30 minutes, stirring occasionally.
4. Cook noodles in a large amount of boiling water until tender, but not soft.
5. Drain and rinse.
6. Beat eggs, cottage cheese, parmesan cheese and parsley.
7. Season generously with salt and pepper.
8. Place 2 noodles in a medium baking dish.
9. Spread with half the cottage cheese mixture. Add half the mozzarella cheese and half the meat sauce.
10. Repeat and bake at 190°C about 30 minutes.
11. Let stand 10 minutes before serving.

DESSERT:**ICE CREAM CONE CAKES**

Cake recipe or mix
Ice cream cones (flat bottomed)

1. Preheat the oven to 180°C.
2. Prepare a cake mix or recipe.
3. Fill the cones about half full (the cake will rise during baking to fill the top and produce a rounded "ice cream" cone).
4. Place cones on a cookie sheet so they are separated from each other.
5. Bake for about 25 minutes, or until cake is done.
6. Cool and ice. Use your imagination to serve.

POPCORN BALLS

1.5 L	popped corn (250 ml of unpopped corn will make 1.5 L of popped corn)
250 ml	molasses or corn syrup
250 ml	sugar
1 ml	salt

1. Popcorn must be dry before it will pop.
2. Just before popping, the kernels should be moistened by putting the corn in a strainer and letting the water run through. Drain.
3. Heat gradually and evenly, using only enough corn in the popper at one time to cover the bottom of it.
4. Pick over the corn to remove unpopped kernels.
5. Put other ingredients in saucepan and stir to mix it.
6. Heat the mixture to 132°C without stirring until the syrup is very thick and is brittle when dropped into cold water.
7. Put the corn into a large bowl. Add the syrup and stir. Let stand 1 min.
8. Dip the hands in cold water. Shake the water off the hands and press some of the corn into a ball. Repeat until all the corn is shaped into balls.

BEVERAGES:

LEMONADE (Serves 10-23 people)

375 ml sugar
250 ml water
Rind of 1 lemon (thin shavings)
Juice of 6 lemons

1. Make syrup of water, sugar, and lemon rind.
2. Boil 5 minutes.
3. Allow to cool.
4. Add lemon juice; strain; dilute with cold water to taste. (Approximately 2 tablespoons syrup to each 227 ml glass.)

FRUIT PUNCH (Serves 10-12 people)

250 ml orange juice
125 ml lemon juice
3 ml grated lemon rind
3 ml grated orange rind
185 ml sugar
1 L boiling water

1. Boil sugar, water and fruit rind for 5 minutes.
2. Allow to cool.
3. Add fruit juices, strain and chill
4. Dilute with iced water, ginger ale, or soda water.

FROSTED DRINKS

Dip the rim of a glass in lemon juice or orange juice. Dip the moistened rim in sugar. Chill and then fill with the beverage of choice.

1	2	3	4	5

- Did the guests get good service?
- Were the tables decorated?
- Was clean-up efficient?

THEME: Service that Makes a Difference
LEARNING ACTIVITY: Service and Technology
GRADE (suggested): 9
TIME (suggested): 6-8 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the meaning of technology as applied to the service industries
- recognize the various uses of technology in the home, the school, and the workplace

Skills:

- demonstrate the ability to select the correct tools and equipment for each job
- follow instructions when using technology

Attitudes:

- describe the value of technology as an aid to home life and work
- discriminate between essential and non-essential technology
- appreciate that technology is constantly changing

RESOURCES

Student Resources

Creative Living, Canadian ed., Don Mills, Ontario: Collier MacMillan Canada, Inc. 1985.

Correlation of Learning Activity with Student Resource

Concepts, Skills and Attitudes	<i>Creative Living</i>
Changes in the World	pp. 311, 312, 317-320
Popular New Appliances	pp. 282, 411, 412
Computers in the Kitchen	p. 193

Teacher Resources

Creative Living, Teacher's Annotated Edition, Canadian ed., Don Mills, Ontario: Collier MacMillan Canada, Inc. 1985.

Magazines, journals, catalogues

TEACHER BACKGROUND INFORMATION

This learning activity will increase students' awareness about technology and its effect on the service industries. In addition, students are provided with opportunities to acquire concepts and skills and develop attitudes appropriate to the use of selected food and textile production technologies.

Suggested student projects included in this learning activity provide students with the opportunity to use tools and equipment commonly available in a home economics lab. To increase students' technological awareness, teachers may:

- encourage students to identify and locate related state-of-the-art technology in the community and to access hands-on learning experiences by requesting the assistance of a mentor or some other form of community partnership
- liaise with other practical arts teachers to plan projects that require students to use different technologies to produce a finished product (e.g., rocking chair and cushion; cookie tray and cookies; inputting and accessing recipes using a computer or word processor)
- invite crafts persons from the community to demonstrate their crafts and to show and tell how technological advances have changed the techniques they use to produce a finished product.

TECHNOLOGY DEFINED

Technology is the application of scientific principles to a practical purpose

Technology is constantly changing as scientists, engineers and people in the service industries try to find quicker, easier and cheaper ways of doing things.

Everyone uses technology. The tools and equipment used in the home, the computers and word processors used in business, and the bulldozers and trucks used to transport materials are just some of the many ways in which technology is used each day.

STUDENT ACTIVITIES

1. Have students brainstorm to identify other examples of technology commonly used in the home, the school, and in the workplace. Have them categorize the items using Resource 1: "Uses of Technology".
2. Have students choose a tool, a piece of equipment, or a food or clothing item that is related to the Personal and Public Services course and:
 - research when the item first became available
 - what item preceded it
 - evaluate the item in its present form.Examples could be:
 - popcorn: the ways it can now be prepared, how it used to be prepared, the advantages and disadvantages of an electric popcorn popper, a microwave popper, etc.
 - food processor: what the food processor can do, how these tasks were previously performed, the advantages and disadvantages
 - a clothing fashion: what the fashion is now, what it was, the reasons for the change, what the future may hold
 - velcro fasteners: what velcro fasteners are, what they are used for, how they work, what fastening methods were previously used, the advantages and disadvantages.
3. In small groups, have students discuss and select what they consider to be the most important piece of technology they have used. Have students outline the reasons for the group's choice through presentations to the rest of the class.

4. Have students select any item of technology, research its history and draw a map showing the technological evolution. For example:



Community Partnerships

5. Invite business education, technical/occupational and industrial education teachers to demonstrate the latest technological advances in their areas. Encourage students to discuss how a technological change in one occupational cluster might affect jobs and job opportunities in other occupational clusters.

TECHNOLOGY AND THE SERVICE INDUSTRIES

New tools and equipment and new methods of doing things are changing many aspects of the service industries. For example,

- food vending machines have replaced catering services in some situations
- automatic coffee makers and ground coffee have replaced the need for most people to grind their own coffee beans, boil water, and make individual cups of coffee.

Most advances in technology have sought to find ways to reduce the need for human contact in:

- producing goods
- selling goods
- providing service.

Machines, when properly operating, provide a consistent product and consistent service twenty-four hours a day.

STUDENT ACTIVITIES

1. a. Brainstorm to identify types and technology which have replaced or may replace the face-to-face contact between people
b. Discuss "Will technology ever totally replace face-to-face service? Why or why not?"
2. Have students complete Resource 2: "Old and New Technologies" following the examples provided.
3. Have students define the terms "AUTOMATION" and "CYBERNATION". Generate discussion on how technology affects employment opportunities and the need for workers to have abilities that can be adapted as new technology is created.

4. Consult with the social studies teacher and have students discuss the effects of technological change on the environment.
5. a. Have students select one project from each of the following two groups and demonstrate the technology used to produce a product to the rest of the class.

GROUP A	GROUP B
Use a serger to sew a simple garment. Use a sewing machine to sew a simple garment. Use hand sewing to complete a simple garment. Knit a scarf or hat. Use crochet or other needlework to produce a chair back cover.	Mix and bake a cake. Cook three different kinds of vegetables. Make soup. Make a lemon meringue pie.

Each student should be encouraged to identify:

- the technology being used
- the reason for choosing that technology
- how the project's completion may have changed if an alternative technology were used.

Note: Students should be permitted to experiment with equipment and tools which are new to them and to solicit advice and assistance from the teacher, from parents, and from community partners.

- b. Sample student evaluation sheets which may be used to evaluate each student's performance on the Group A and Group B projects are provided as Resource 3: "Sample Student Evaluation Sheet for Food Products", Resource 4: "Sample Student Evaluation Sheet for Clothing and Textile Project" and Resource 5: "General Lab Evaluation Sheet".

Community Partnerships

6. Visit local suppliers of hotel and restaurant equipment, art and craft supplies, food processing and food production plants (e.g., bakeries, flour mills, cafeterias, etc.) Encourage students to make written observations about the production flow:
 - how long does it take to make one loaf of bread in a local bakery?
 - how many people are needed to operate an automated dishwasher?
7. Invite community partners to demonstrate "the old way" of doing things and to discuss the advantages and disadvantages of the old versus the new.
8. Visit a local museum or heritage centre and have students identify and match old technology with new items of technology.

USES OF TECHNOLOGY**Instructions:**

List three items of technology used in the home, the school and in the workplace.

Technology	Advantages	Disadvantages
Technology in the Home: 1. 2. 3.		
Technology in the School: 1. 2. 3.		
Technology in the Workplace: 1. 2. 3.		

**OLD AND NEW TECHNOLOGIES:
ADVANTAGES AND DISADVANTAGES**

Task	New Technology	Advantages of Using the New Technology	Disadvantages of Using the Old Technology
Watching a movie	Video cassette or disc	Used in the home.	People have to leave their homes to go to the movies
Cooking french fries	Frozen, pre-cut, pre-fried potatoes. Available in different shapes and packet sizes.	Quick, easy to use, little mess if heated in oven or microwave.	Slower process. Potatoes need to be peeled, washed, cut, fried and then drained
Sewing a hem	Serger	Cuts, sews and finishes hem in one operation	Multiple operations. Need to cut, then sew and finish the hem
Baking a cake			
Knitting			
Making clothes			
Dieting			
Cutting roast beef			

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SAMPLE STUDENT EVALUATION SHEET FOR FOOD PROJECTS

Student: _____

Project: _____

Date: _____

1. Preparation

- Chose recipe wisely
- Produced recipe on time
- Tied hair back
- Assembled utensils before beginning lab

2. Management

- Worked quietly and efficiently
- Assembled supplies before preparing food
- Did not waste time

3. Product Presentation

- Appearance
- Colour
- Texture

4. Clean-up

- Washed all utensils
- Returned supplies to their correct storage areas
- Disposed of waste food materials
- Cleaned work area

5. Personal Abilities

- Worked well with others
- Showed initiative
- Consulted community partner(s)

Poor 0	Average 1	Above Average 2	Excel- lent 3	Comments

Possible Total: _____

Total: _____

**SAMPLE STUDENT EVALUATION SHEET
FOR CLOTHING AND TEXTILE PROJECT**

	5	4	3	2	1
1. Identifies a pattern.					
2. Follows a pattern.					
3. Selects appropriate technology.					
4. Uses technology correctly.					
5. Produces a finished product.					
6. Uses community resources.					
7. Cleans work area.					
8. Evaluates own work.					
9. Suggests ways to improve on work.					
10. Accepts advice from others.					
Total					
Key: 5 - Excellent; 4 - Very Good; 3 - Good; 2 - Unsatisfactory; 1 - Poor.					

GENERAL LAB EVALUATION SHEET

Student Evaluation										Teacher Evaluation																													
Unsatisfactory										Average										Excellent																			
A	PERSONAL HYGIENE									1 2 3 4										5 6 7										8 9 10									
- (hygienic work habits, hair controlled, apron)																																							
B	ATTITUDE AND CONDUCT									1 2 3 4										5 6 7										8 9 10									
- (punctuality, cooperation, interest in work, appropriate behaviour, concentrates on task at hand)																																							
C	MANAGEMENT SKILLS									1 2 3 4										5 6 7										8 9 10									
- (works from a plan, follows instructions, cleans up by buzzer time, prepares correct amount, constructive use of extra time, solves problems, evaluates own product, skills and work procedure)																																							
D	PRODUCT EVALUATION									1 2 3 4										5 6 7										8 9 10									
- (products pleasant to sample, products appropriately presented, tries new products)																																							
E	STANDARDS OF CLEANLINESS									1 2 3 4										5 6 7										8 9 10									
- (proper clean up, observes safety rules, stores everything in proper place, does assigned chores)																																							
TOTAL																																							

Comments:

THEME: Service that Makes a Difference
LEARNING ACTIVITY: Smile, You're a Tourist Attraction!
GRADE (suggested): 9
TIME (suggested): 8-10 hours

LEARNING OBJECTIVES

The student will:

Concepts:

- understand the importance of tourism to the community
- recognize the components of good service

Skills:

- demonstrate good listening skills
- begin to develop a positive, enthusiastic and professional attitude toward providing service to others

Attitudes:

- appreciate the value of providing good service to consumers

RESOURCES

Teacher Resources

A variety of teaching/learning aids may be obtained from the following public agencies:

- Alberta Career Development and Employment
- Alberta Tourism and Hospitality Advisory Council
- Canadian Tourist Association
- Travel Alberta
- Northern Alberta Institute of Technology
- Southern Alberta Institute of Technology

Private agencies that may also be able to provide assistance include:

- Chambers of Commerce
- The Alberta Hotel Association
- The Motel Association of Alberta
- The Tourism Industry Association of Alberta
- Local hotels and motels.

TEACHER BACKGROUND INFORMATION

The tourism and hospitality industry is one of the fastest growing industries in the world and Alberta is no exception to this trend. Each year in Alberta the industry generates more than \$2 billion in revenues, equal to about \$1,000 for every man, woman and child.

This learning activity will increase students' awareness of career opportunities in tourism and hospitality. In addition, this learning activity will enable students to acquire the concepts, skills and

attitudes appropriate to employees and entrepreneurs in the various sectors of the tourism and hospitality industry

The material in this learning activity is adapted from a series of instructional manuals, *Surprise! You're in Tourism*, published by Travel Alberta. Further information on these and other resources may be obtained from:

Department of Tourism
Government of Alberta
15th Floor, 10025 Jasper Avenue
Edmonton, Alberta T5J 3Z3
ph. (403) 427-7612.

CAREER INFORMATION

Jobs are usually plentiful in the tourism and hospitality industry. The major categories of employment include:

- bartender
- bellhop
- bookkeeper
- clerk
- cashier
- chambermaid/houseman
- cook or chef
- desk clerk
- hotel/motel manager
- housekeeper
- telephone operator
- waiter/waitress

(Note: Teachers may obtain one-page career profiles on each of these careers from a local office of Alberta Career Development and Employment.)

STUDENT ACTIVITIES

1. Have students read Resource 2: "The Tourist Dollar" and then:
 - a. brainstorm: "What are the benefits of a good tourism and hospitality industry?"
 - b. categorize and provide examples of how the community benefits from tourism and hospitality. The following chart may be used as a guide.

Benefits of a Good Tourism and Hospitality Industry

BENEFITS	EXAMPLES
Recreational	
Cultural Awareness	
Economic	
Employment	

2. Use Resource 3: "Tourism and Your Community" as a student handout or as a transparency to stimulate a discussion on the types of service industries in the community that rely on tourist dollars.

Community Partnerships

3. Have students check the local classified advertisements and identify the jobs that are directly and indirectly related to the tourism and hospitality industry.
4.
 - a. Have students select three of the tourism and hospitality career areas and interview a worker in each of the areas selected. Resource 1: "Interview Guide" may be used to help students record their observations and discussions.
 - b. Have students summarize their interview notes and share their information by making presentations to the rest of the class.
5.
 - a. Invite a variety of workers in the tourism and hospitality industry to discuss their respective jobs and career expectations.
 - b. Establish job shadowing placements in local hotels, motels, recreation centres, parks, swimming pools, etc.

CUSTOMER SERVICE

Tourism and hospitality is a service industry. Every person involved in the industry needs to appreciate the importance of people, places and things to tourists and others seeking good service.

Customers form impressions about a place, a hotel, motel, restaurant, park, etc., by:

- the cleanliness of the facility
- the attitudes of each staff member
- whether staff are pleased to have them as guests
- whether staff keep smiling even after a long and hard day of work
- how staff communicate

Visitors from out-of-town or from another province or country often judge a whole community by the service they receive from a service station attendant or a hotel/motel desk clerk. First impressions are difficult to break; therefore, the secret of success in the tourism and hospitality industry, (in fact all service occupations) is for every employer and employee to make certain that the first impression given visitors is a "positive impression".

STUDENT ACTIVITIES

1.
 - a. Have students read Resource 4: "Definition of a Visitor" and Resource 5: "I'm a Nice Tourist".
 - b. In groups of 2-4 have students role play various scenarios using both verbal and non-verbal communication techniques.

2. Have students exchange stories about the best holiday they ever had and explain why it was so good.
3. Identify students who presently have or have had part-time jobs that they believe are related to tourism and hospitality. Ask these students to describe:
 - the work performed
 - how they were trained on-the-job
 - what their employer's expectations were
 - what visitors' and guests' expectations were.
4. Have students define and discuss the meaning of:
 - courtesy
 - service
 - first impressions.

KEYS TO SUCCESS IN SERVICE OPERATION

Without question, courtesy is contagious. There are three basic tools of the courtesy trade: a friendly gesture, a friendly smile and a friendly phrase.

Your smile is a magic mirror that eases any relationship, and usually results in a reflection of your courteous attitude. A "please" or "thank you" softens all dealings with others, and are basic to our vocabulary. A friendly gesture to clarify directions, especially for non-English speaking guests, is always appreciated. In short, courtesy can be expressed in everything we do and say.

The challenge to people in tourism and hospitality is to meet and exceed our visitors' expectations.

- learn and practise good visitor service skills
- develop and maintain a positive attitude
- handle visitor complaints positively

1. Attitude

Take an objective and positive approach in the performance of your job. Present a positive and helpful image toward guests and fellow employees.

To present a positive attitude:

- show an interest in your work
- keep up your team's morale
- channel your energy towards performance
- portray a healthy enthusiasm toward your guests
- show a willingness to do more than the "bare minimum".

2. Adaptability

Show that you are willing to be flexible, to learn new jobs, and to cope with unusual and often changing situations.

Some aspects of adaptability are:

- anticipate busy and slow periods and adjust accordingly
- be flexible about working different locations and positions
- adjust to new procedures such as using new operating methods or trying out new systems.

3. Appearance/Grooming

Make a continuous effort to meet grooming standards. Present a good physical appearance and follow established guidelines:

- keep your clothing in good condition
- maintain an appropriate hair style and length
- wear appropriate makeup, jewelry, and shoes
- maintain a neat and tidy appearance
- maintain good posture
- keep shoes polished
- always wear your name tag.

4. Courtesy

Maintain the standard of courtesy through your attitude, your tact, and your helpfulness toward guests and fellow employees.

Some aspects of showing courtesy are:

- pay attention to the guests' needs and wishes
- pleasantly explain any unusual situations to guests
- use standard greetings and phrases such as "please", "thank you", and "you're welcome"
- handle difficult situations tactfully
- answer questions clearly and patiently.

5. Quality/Efficiency

Strive to perform work to the highest possible standards. Make sure a "bad day" for you does not reflect in the quality of the work you perform.

6. Attendance

Consistently begin and end your shifts as scheduled, and return from breaks and lunches on time

Some aspects of attendance are:

- maintain a good overall attendance record
- get to work on time
- do not excessively ask to leave early
- do not excessively ask for days off
- take appropriate breaks and lunches

7. Dependability

Show reliability in performing and completing your assigned work responsibilities, with little follow-up required.

Some aspects of dependability are:

- be willing to extend your shift when necessary
- show you can be depended on to do work assignments you are given.

8. Initiative/Drive/Energy

Display energy, initiative, and enthusiasm. Anticipate and initiate needed action. Persevere in accomplishing your assignments.

Some characteristics of initiative are:

- keep busy when business is slow
- work to your level of ability and potential
- show interest in your self-development and suggest new ideas to achieve things.

9 Working Relationship

Attempt to get along with your fellow employees and supervisors. Use tact, cooperation and helpfulness in your working relationships

Some factors in working relationships:

- communicate well with your fellow employees in the same working positions
- get along with your fellow employees in different working positions and from different locations
- get along with your supervisor. Inform your supervisor of possible safety hazards
- keep your supervisor updated on events of the day such as guest complaints or show problems. Inform your supervisor of potential scheduling problems
- offer practical and constructive solutions to identified problems.

STUDENT ACTIVITIES

1. Have students read and discuss Resource 6: "What is a Smile?". Lead them to appreciate that a smile is more than the expression on one's face; it is a genuine commitment to interest in providing service.
2. Brainstorm and discuss:
"What kinds of behaviours show that someone has a positive attitude?"
"What are the advantages of having a positive attitude? To self? To others?"
"Why should an employer be concerned about the attitude you show while working?"
3. Discuss:
"What skills are required by an entrepreneur wanting to start one or the other of the following businesses?"
 - hot dog stand
 - coffee shop
 - greeting balloons
 - window cleaning
 - courier service
 - tourist guide.

Community Partnerships

4. Encourage students to offer volunteer services to both in-school and community activities in order to further develop their good service skills:
 - school bookstore
 - concession at school activities
 - library
 - recreation centre
 - hospital
 - senior citizens' lodge.

LISTENING

The ability to listen is one of the most important skills needed by those who work in the service industries.

Good service takes place when employees listen to customers, visitors and guests and genuinely attempt to understand what each is saying.

Effective listening means more than just hearing the words, it means that the listener:

- shows willingness to listen by using non-verbal communication techniques:
 - looks directly at the person speaking
 - does not interrupt the speaker
 - smiles
- reflects on the speaker's question or comment before answering
- does not show prejudice.

STUDENT ACTIVITIES

1. Have students complete Resource 7: "Check Your Listening Skills" and use their responses to generate a discussion on:
 - how to improve listening skills
 - the effect of body language on the speaker and on the listener.
2. Use Resource 8: "Listen Up!" to foster improvement in listening and communicating skills.

HANDLING COMPLAINTS*

A customer, guest or visitor who has a complaint is a very important person. If the complaint is dealt with properly, the person complaining will usually feel that the complaint has been dealt with courteously, efficiently and firmly.

A person whose complaint is either ignored or not acted upon will not only be a dissatisfied customer, guest or visitor, but will take away negative impressions about the operation he or she complained about.

When receiving a complaint, an employee should not:

- ignore it
- store it
- act aggressively
- take it personally

* From "Meeting Visitor Expectations", *Surprise! You're in Tourism, Participant's Manual*. Customer Relations Seminar. Copyright by Travel Alberta. Reprinted by permission.

Employers and employees in the tourism and hospitality industry must remember that:

- Customers are not dependent on us...we are dependent on them.
- Customers are not an interruption of our work...they are the purpose of it.
- Customers do us a favour when they come in. We can return the favour by waiting on them.
- We are in business, have jobs and get paid because of our customers...not in spite of them.
- Every member of an organization who, in any capacity, comes in contact with the public, is a salesperson, and the impression he or she makes is an advertisement -- good or bad!

STUDENT ACTIVITY

1. Have students work in pairs and role play various scenarios in which a customer complains about a product purchased or a service received. The following scenarios may be used as a guide. Ask students individually, in small groups, or as a class to identify and describe the issues, the questions, and the alternative solutions to each scenario.

Job Entry Scenario for Bank or Order Desk Staff*

Today is payday. One employee called in sick and the front counter is very busy. Even though lunch hour is always hectic, customers still expect good service. Having only been on staff three weeks, your speed and efficiency doesn't quite match the more experienced staff. Suddenly an impatient customer loudly says, "Don't you know what you're doing? I have wasted almost all my lunch break because you are slow!" How do you handle this situation? How could you have better prepared yourself?

Job Entry Scenario for Receptionist Staff

It's been one of those days! The telephones won't stop ringing and nobody seems to be picking up their messages, let alone returning their calls. You know for sure someone will soon call back again and take it out on you because their call hasn't been returned. How do you prepare yourself for that angry caller?

Food Services Scenario - Wrong Change Complaint

Half time is almost over when a customer approaches, angrily exclaiming, "You gave me the wrong change. I didn't notice it until I sat down but you short changed me \$5.00, and I want it back, right now!" Almost positive that you, in fact, did not short change this person, how do you respond?

Food Services Scenario - Possible Order Mix-Up

In the midst of your busiest time, a customer approaches complaining, "You gave me the wrong order. I requested root beer, not coke. What kind of a worker are you anyway, if you can't even handle a simple order!" How do you respond, feeling sure that on the contrary, he had ordered a coke?

Food Services Scenario - Limited Menu Complaint

Disappointed, after finding out that neither steak sandwiches, chili-dogs nor tacos are served here, a customer angrily exclaims, "What kind of a concession do you run? I'm from the States, and I can tell you, I'm not impressed with your limited menu. Don't you try to cater to the customer at all?"

* From *Surprise! You're in Tourism, Participant's Manual, Customer Relations Seminar*. Copyright Travel Alberta. Reprinted by permission.

STUDENT EVALUATION

Student evaluation should be ongoing in this learning activity. The following rating scale may be used to assess changes in each student's behaviour and performance.

RATING SCALE FOR EVALUATION STUDENT BEHAVIOUR AND PERFORMANCE		
High 5	Medium 3	Low 0
A. Contribution to class discussion		
1. Contributes frequently.	1. Contributes occasionally.	1. Contributes very seldom.
2. Gives good pertinent answers and suggestions.	2. Gives answers that are fairly good and relevant.	2. Strays from subject.
3. Supports answers.	3. Cannot always support or justify answers.	3. Seldom able to support or justify decision.
B. Individual independence or resourcefulness		
1. Asks for little assistance until some attempt has been made to solve problem.	1. Expects considerable assistance with each problem.	1. Wants to be told what to do next.
2. Asks good questions.	2. Asks fair questions.	2. Asks poor questions.
3. Voluntarily examines reference materials.	3. Makes some use of illustrative matter and reference materials.	3. Unable to use illustrative and reference materials.
C. Demonstration of knowledge, skills and attitude		
1. Knows the meaning of courtesy and service.	1. Needs to be reminded of the meaning of courtesy and service.	1. Is unaware of what it means to be courteous and to give service.
2. Demonstrates good service skills.	2. Demonstrates fair service skills.	2. Demonstrates poor service skills.
3. Appreciates the importance of good service.	3. Shows some appreciation for the importance of good service.	3. Shows no appreciation for good service skills.

TOURISM AND HOSPITALITY

INTERVIEW GUIDE

Interviewer: _____

Name of person interviewed: _____

Occupation: _____

● Hours of work: _____

● Average rate of pay per hour: _____

● Benefits: _____

● Tasks performed: _____

● Working conditions: _____

Career Advancement Opportunities: _____

Entry-level Educational Requirements: _____

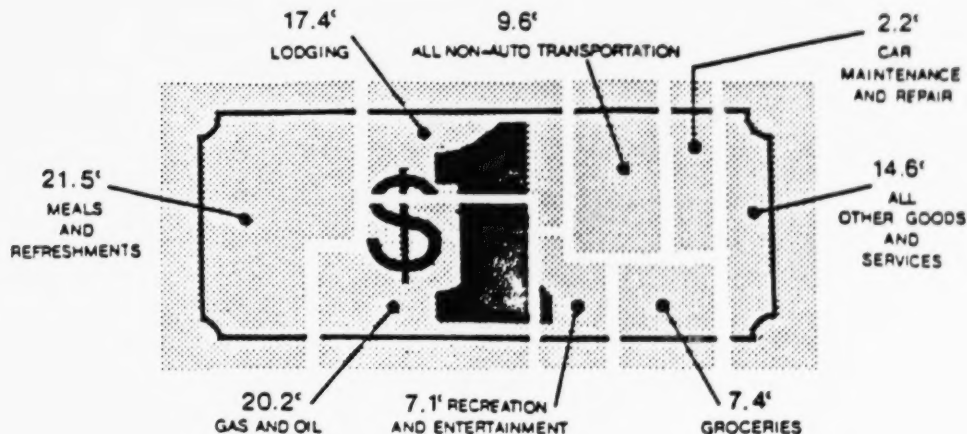
Opportunities for further education and training:

● On-the-job: _____

● In the community: _____

THE TOURIST DOLLAR

Every dollar spent by tourists in Alberta is allocated in the following manner:



Tourism Benefits Everyone

Imagine for a moment that a tourist eats a meal in a local restaurant, stays a night at a local motel and fills the car with gas at a local service station. The restaurant, motel and service station owners benefit directly from tourism spending, and now the dollars spent by the tourist begin to circulate through the economy.

To support tourist activities and expenditures, the restaurant owner buys milk and eggs from local producers, the motel owner purchases fuel and electricity from utility companies, and the service station owner acquires gas and oil from refineries. All three pay rent or taxes on their premises, pay wages to employees and pay for the annual renewal of their business licenses.

If local tourism increases, the number of dollars available to the local economy also increase. Our restaurant, motel and service station owners may decide to expand their operations to take advantage of this increased trade... they hire an accountant to help with income projections, they go to the bank to borrow money, they hire an architect to design their building expansion, and they hire a contractor to oversee renovations.

In addition, new businesses and new visitor attractions in the community may be developed to support the increase in tourism activity.

Everyone is affected by tourism dollars spent in their region. The two-fold challenge is to increase the number of visitors to an area as well as the number of dollars each of them spends.

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Tourism and Your Community



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DEFINITION OF A VISITOR

- VISITORS are the most important people in our business. If it were not for them, our roles would be limited.
- VISITORS are not dependent on us. We are dependent on them.
- VISITORS are not an interruption of our work. They are the purpose of it.
- VISITORS do us a favour when they come in. We are not doing them a favour by waiting on them. We are in business, have jobs and get paid because of our visitors, not in spite of them.
- VISITORS are part of our business - not outsiders.
- VISITORS are not just money in the cash register. They are human beings with feelings like our own.
- VISITORS are human beings with feelings, emotions, likes and dislikes.
- VISITORS are very impressionable and have good memories - especially regarding the attitudes with which they have been received on their trip.
- VISITORS are not people with whom one argues or matches wits. They should be treated with politeness and respect even when you are performing difficult aspects of your job.
- VISITORS are people who want friendly contact with friendly people, regardless of our role in dealing with them.
- VISITORS deserve the most courteous attention we can give them. They are the lifeblood of this and every business. Without them we would have to close our doors. Don't ever forget it!

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I'M A NICE TOURIST!

You know me. I'm a nice tourist. I never complain, no matter what kind of service I get.

I'll go into a restaurant and sit while the waitress gossips with her boyfriend and never bothers to see if my hamburger is ready. Sometimes someone who came in after I did gets my hamburger, but I don't say a word. If the soup is cold or the cream for the coffee is sour, I'm nice about it.

If the service station attendant fails to check my oil or polish the windshield, I don't even raise my eyebrows. When I go into a store and get surly treatment and lack of sympathy with my browsing around, I don't make a fuss.

When I register at a motel or hotel, I'm thoughtful of the other person. If I get a snooty manager who gets nettled because I want to look at my room before making up my mind, I'm polite as can be. I don't believe rudeness in return is the answer. You might say I wasn't raised that way.

And it's seldom I complain about the poor room service, the broken-down elevator, the leaking bathtub faucet or the television set that doesn't work. I've found people are always disagreeable to me when I do. Life's too short for indulging in these unpleasant little scrimmages.

I never kick. I never nag. I never criticize. I wouldn't dream of making a scene, as I've seen other people do in a public place.

I'm a nice tourist! I'll tell you what else I am. I'M THE TOURIST WHO NEVER COMES BACK!

That's my revenge for getting pushed around. That's why I take whatever they hand out. I know I'm not coming back. It's true that this doesn't relieve my feelings right off, but in the long run, it's a far more deadly revenge.

In fact, a nice tourist like me, multiplied by others of my kind, can just about ruin a business. And there are a lot of nice tourists in the world. When we get pushed far enough, we go down the street to another restaurant. We eat hamburgers in places that are smart enough to hire help who appreciate nice tourists. Together we do the rude people out of millions of dollars every year.

The one who laughs best, they say, is the one who laughs last. I laugh when I see places frantically spending their money on advertising just to get me back, when they would have held me in the first place with a few kind words and a smile.

Courtesy of the Canadian Tourist Association, Toronto, Canada. Reprinted from *Surprise! You're in Tourism, Participant's Manual*, Customer Relations Seminar. Copyright by Travel Alberta. Reprinted by permission.

WHAT IS A SMILE?

It costs nothing but creates much.

It enriches those who receive it, without impoverishing those who give it.

It happens in a flash and the memory of it sometimes lasts forever.

None are so rich they can get along without it and none are so poor but they are richer for its benefits.

It creates happiness in the home, fosters good will in business and is the countersign of good friends.

It is rest to the weary, daylight to the discouraged, sunshine to the sad, and nature's best antidote for trouble.

Yet it cannot be bought, it cannot be begged, it cannot be borrowed, and it cannot be stolen, for it is something that is personal to anyone until it is given away

And, if it ever happens that some people are too tired to give you a smile, why not leave one of yours?

For nobody needs a smile so much as those who have none left to give.

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CHECK YOUR LISTENING SKILLS

Read each sentence and rate yourself. Don't make up an answer. Write down the first answer that comes to your mind. Use the following scale.

Always	= 4 points
Almost always	= 3 points
Rarely	= 2 points
Never	= 1 point

1. I let a speaker express his/her thoughts without interrupting.	4	3	2	1
2. I feel I must protect my own ideas and position.	4	3	2	1
3. I use my ears, eyes, and heart when I listen.	4	3	2	1
4. I make it my business to know something about the speaker.	4	3	2	1
5. I avoid reaching conclusions until a speaker has finished speaking.	4	3	2	1
6. I listen by putting myself into the speaker's message.	4	3	2	1
7. I ask for factual support to clarify a speaker's message.	4	3	2	1
8. I make mental notes when I'm listening.	4	3	2	1
9. I ignore distractions when I'm listening.	4	3	2	1
10. I express genuine interest in the speaker's conversation.	4	3	2	1
11. I repeat what I think the speaker has said.	4	3	2	1
12. I respond to a speaker's feelings as well as ideas.	4	3	2	1
13. I use the speaker's tone of voice as an indicator of feelings.	4	3	2	1
14. I use non-verbal communication to help me listen effectively.	4	3	2	1
15. I understand that a speaker's perceptions are a result of background, profession, economic status, and culture.	4	3	2	1

TOTAL: _____

RATING:

48 points or more	Excellent
40-47 points	Better than Average
33-39 points	Practice Required
32 points or less	Message probably getting mixed up

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LISTEN UP!

Purpose: To provide an opportunity for you to practise your listening skills.

Goal: To obtain information from someone and to feed that information back to check it for correctness.

Procedure:

1. Choose a partner.
2. Take five minutes to find out the following information about your partner:
 - Name and place of birth
 - Description of favourite hobby, sport, or interest
 - One strength they feel they have in working with people
 - Their ideal job.
3. Share your partner's information with the whole group.

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COURSE: TECHNICAL/OCCUPATIONAL

THEME: TECHNIQUES WITH TECHNOLOGY

THEMATIC LEARNING ACTIVITIES

	<u>SUGGESTED GRADE</u>	<u>SUGGESTED TIME/HOURS</u>
A. Getting Into the Picture	8	12-15
B. Going In Circuits	8	8-10
C. Heavy Metal	8	10-12
D. Safety: The Tools of the Trade	8	20-25
E. Wheeling and Dealing	8	15-20
F. Design Technology	9	10-25
G. Getting Into the Bigger Picture	9	8-10
H. Give it the Gas: Building a Model Dragster	9	20-25
I. Joining Forces: Constructing an Extension Cord	9	4-6
J. Small Engine Maintenance	9	15-20

COURSE: TECHNICAL/OCCUPATIONAL

THEME: TECHNIQUES WITH TECHNOLOGY

OVERVIEW

The term "technology" is used to describe the multitude of ways that scientific knowledge is applied to practical uses. Every occupation requires workers who have the ability to use technology – the tools of the trade – and who understand that changes in technology affect the way that work is performed and the skills required by workers. The Technical/Occupational component of the I.O.P. Practical Arts, Grades 8 and 9, is addressed in the theme "Techniques with Technology".

The learning activities included in this theme provide the vehicle through which students develop an awareness of:

- career opportunities available to those who demonstrate the ability to use tools (hand, power, measuring and layout) and equipment (design and production)
- how the concepts, skills and attitudes acquired in the Technical/Occupational component of the I.O.P. Practical Arts, Grades 8 and 9, are related to careers in the eight occupational clusters presented in the senior high Integrated Occupational Program.

Teachers are encouraged to develop additional learning activities to meet the needs and interests of their students and to maximize the potential to integrate community partnership activities into the curriculum.

Opportunities exist within this theme for developing community partnerships:

- community in the classroom
Invite local personnel to discuss and demonstrate the uses of technology in the eight occupational clusters.
Guests may include:
 - mechanics (agricultural, automotive, maintenance, small engine)
 - gardeners/horticultural workers
 - journeyman and apprentice tradespersons
 - graphic artists/designers
 - photographers
 - craftspersons
 - office workers
 - personnel officers.
- classroom in the community
Involve students in the selection and organization of learning activities within the community:
 - field trips
 - mentorships
 - job shadowing.

THEMATIC OBJECTIVES

This theme will enable students to:

- develop an understanding of the uses of technology in the world of work
- investigate the career opportunities available to people who have the ability to use tools, equipment and supplies safely
- recognize the different and similar forms of technology used in a variety of occupational clusters

- develop basic competencies in handling tools, equipment and supplies
- recognize entrepreneurial opportunities for people with technical skills
- understand that the knowledge learned and the skills and attitudes developed in the Technical/Occupational courses are transferable to occupations within each of the eight occupational clusters.

PROCESS OBJECTIVES

Using the learning activities as instruments, students will acquire the ability to:

- employ an appropriate problem-solving/decision-making model when planning a project or discussing an issue
- participate actively in planning in-school and community partnership activities
- communicate effectively and efficiently
- relate well to others
- organize and plan short- and long-range activities
- maintain a work area to predetermined standards
- produce work to at least minimum standards.

ATTITUDE OBJECTIVES

Attitudes developed throughout the theme will enable students to:

- appreciate the uses of technology in the home, the school, and the workplace
- appreciate the need for work standards including safety and quality control
- recognize the effect of technological change in the workplace
- appreciate the need to respect the rights of others
- accept responsibility for their behaviour and performance
- appreciate that learning is a lifelong process.

INTEGRATION ACTIVITIES

Cooperative planning among teachers is essential to the success of the Integrated Occupational Program. Suggestions for integration are outlined in column three of the *I.O.P. Practical Arts, Grades 8 and 9 Program of Studies/Curriculum Guide* and additional suggestions are provided within each learning activity in the *Teacher Resource Manual*. In schools where a different teacher is responsible for each of the three component courses that comprise the I.O.P. Practical Arts, Grades 8 and 9 – Business Education, Personal and Public Services, Technical/Occupational – sequential learning activities that provide for further integration are suggested.

Teachers are encouraged to attempt these suggestions and to create new sequential integration activities suited to local conditions.

THEME: Techniques with Technology
LEARNING ACTIVITY: Getting Into the Picture
GRADE (suggested): 8
TIME (suggested): 12-15 hours

LEARNING OBJECTIVES:

The student will:

Concepts:

- understand the basic principles of a single lens reflect camera
- recognize the basic procedure used to take a photograph, develop the film, and produce a contact print

Skills:

- operate a basic single lens reflex camera and take photographs
- begin to develop the ability to process film and make contact prints

Attitudes:

- begin to appreciate that photography is both an art and a science
- appreciate the need for organization and planning in the photographic process

RESOURCES:

Student Resources

General Industrial Education, Glencoe Publishing Company, Bennett and McKnight Division, 1988.

Correlation of Learning Activity with Student Resource

Concepts, Skills and Attitudes	<i>General Industrial Education</i>
Graphic Arts: • Careers • Safety • Photography - Developing Film - Contact Printing	p. 112 pp. 2-3 p. 72 pp. 73-75 pp. 76-77

Teacher Resources

A photographic darkroom with basic fittings, equipment and supplies.

Specific resources required for each student activity are outlined in the resource section at the back of this learning activity.

TEACHER BACKGROUND INFORMATION

This learning activity will introduce students to one area of the visual communications industry, photography. The concepts, skills and attitudes developed by students through this learning activity will enable them to become more aware of career opportunities in the creative arts occupational cluster as well as to develop basic life skills and hobbies.

This learning activity should precede a related learning activity, "Getting into the Bigger Picture". However, teachers may choose to offer both learning activities in either Grade 8 or Grade 9.

Additional or alternative learning activities related to the field of visual communications may be selected by the teacher. Suggested activities contained in *General Industrial Education*:

- Rubber Stamping (pp. 85-90)
- Marbling (pp. 90-93)
- Hot Stamping (pp. 94-96)
- Linoleum Block Printing (pp. 97-103)
- Bookbinding (pp. 104-111)

Acknowledgement

The material contained in this learning activity has been adapted from:

Graphic Communications: Photography. Copyright 1977 by Colin Scheeler. Reprinted by permission.

CAREERS

The visual communications industry includes a large number of different areas and occupations. The major areas include:

- Photography
- Printing
- Composing, designing and layout
- Lithography
- Bookbinding
- Advertising.

Each of these career areas provide opportunities for ambitious people to climb a career ladder and/or go into business for themselves.

STUDENT ACTIVITIES

1. Have students use Resource 1: "Careers and Occupations in Visual Communications" to research, identify and describe potential career areas.
2. Discuss: "Why do people take photographs? What is their value now? In the future?"

Community Partnerships

3. Invite a representative from the Alberta Professional Photographer's Association to discuss and describe photography as a career field.
4.
 - a. Provide students with opportunities to become aware of the career potential in the visual communication industry by facilitating field trips and job shadowing and other field experiences to local printers, advertising agencies, photographic operations (industrial, commercial, portrait), paper making operations, newspaper/magazine plants, etc.
 - b. Have students observe and record their observations on each field experience and have an individual or small groups of students summarize their observations and present them to the rest of the class for reaction and constructive feedback.
5. Have students investigate the potential for photographic related entrepreneurial activities and report back to the class.

SAFETY PRACTICES

Because the field of visual communications is so diverse, specific safety practices differ in each occupational area. Basic safe-use practices involve:

- equipment safety
- chemical safety
- work area safety

STUDENT ACTIVITIES

1. Have students identify the major equipment and chemicals used in the photographic area of the lab.
 - a. Demonstrate and describe safe handling of equipment practices and have each student model these practices until an adequate level of safety awareness and performance is achieved.
 - b. Demonstrate and describe safe handling of chemicals and how to recognize and properly store each chemical.
2. Review general safety principles outlined in the Learning Activity: "Safety: The Tools of the Trade", and have students read and discuss pp. 2-3 in *General Industrial Education*.

Community Partnerships

3. Invite a local photographer, photographic supplies salesperson or a representative from Alberta Workers' Health Safety and Compensation, Occupational Health and Safety Division to discuss safety in the field of visual communications in general and in the area of photography in particular.

4. Have students observe, record and discuss safety procedures and practices used in the workplace when involved in community partnership activities.

THE SINGLE LENS REFLEX (S.L.R.)

The single lens reflex is the most popular of all cameras for the amateur photographer. A single lens reflex camera means that the subject is viewed through the same lens that will take the picture, thereby allowing exact framing. The image to be focused is reflected from a mirror upward into the user's eye.

When the shutter is released, the mirror retracts upward allowing the image light to strike the film directly through the lens. When the exposure is complete, the mirror returns to its downward position.

Resource 2: "Basic Parts of a Single Lens Reflex Camera" explains the basic operation of a single lens reflex camera.

Advantages

- Small size
- Lightweight
- Good maneuverability
- Superfast lenses available
- Rapid-fire operation
- Excellent for sequence and stop-motion photography
- Low cost per picture for film
- Good adaptability for slide series and filmstrip work.

Disadvantages

- Small size negative makes quality enlarging difficult
- Expensive additional lenses or even less costly accessory lenses must be obtained for copying.

There are three basic parts to an S.L.R. camera:

- lens
- shutter
- aperture.

The **lens** is the eye of the camera. It collects light rays from the subject being photographed and focuses them on the surface of the film at the back of the camera. The **exposure** in S.L.R. cameras (i.e., the amount of light allowed to enter the camera) can be controlled either manually or automatically.

Controlling the exposure is important; if the film receives too much light, the resulting picture has a white washed-out look. This is called **overexposure**. An **underexposed** photograph is one that is too dark.

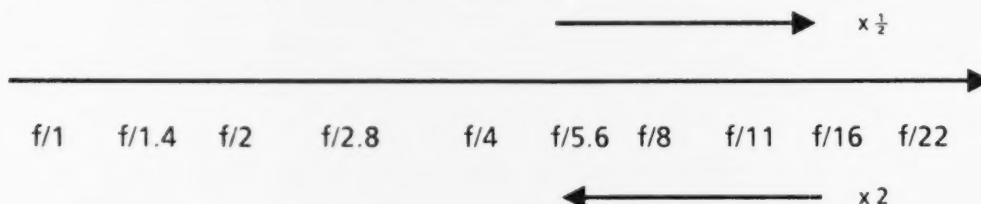
A device known as the **iris diaphragm** allows you to vary the size of the lens opening thus regulating the brightness of the light that enters the camera. The iris diaphragm consists of thin leaves of metal arranged in such a way that they form a circular opening that can be changed from small to large and from large to small.

The larger the lens opening - or **APERTURE** - the greater the intensity of the light that enters. A small aperture means less brightness.

There is a close relationship between the f-numbers and the amount of light admitted to the film. Opening up one full stop (moving to a smaller number), doubles the light admitted to the film. Closing down one full stop cuts the intensity in half.

Resource 3: "f STOPS" shows the association between f-number and the amount of light admitted to the film.

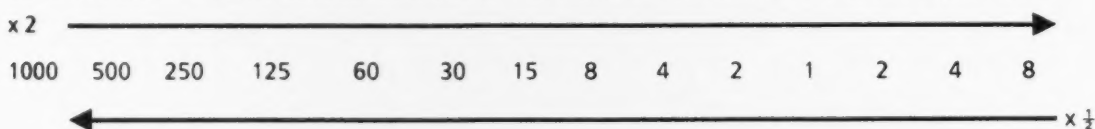
The standard range of f-stops on most cameras is:



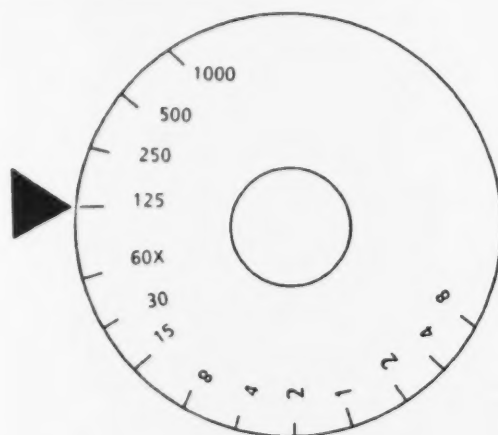
As the f-number gets larger, the amount of light allowed into the camera gets smaller.

The shutter is a time control mechanical device inside the camera that opens and closes, allowing light to fall upon the film for a carefully measured amount of time. A push-button shutter release enables the shutter to be "tripped". Advanced SLR's have shutter speeds ranging from 1/1000 of a second to as much as eight full seconds. The faster the shutter speed, the less time the shutter is open, and the smaller the amount of light that strikes the film. Conversely, the slower the shutter speed, the longer the shutter is open, and the greater the amount of light admitted.

The range of shutter speeds often goes as follows: 1/1000, 1/500, 1/150, 1/125, 1/60, 1/30, 1/15, 1/8, 1/4, 1/2, 1, 2, 4, 8. On the camera, only the denominators appear. It is important to realize that when moving from one setting to the next fastest, e.g., from 1/30 to 1/60, the exposure is reduced by half (reducing amount of time the shutter is open). Reversing the direction doubles the exposure.



The higher the number on the exposure guide, the less time the shutter is open. Conversely, the smaller the number the more time the shutter is open.



Resource 4: "Shutter Speeds" shows the relationship between f-stops and shutter speeds.

LOADING AND USING AN SLR CAMERA

The loading procedure may vary for different SLR cameras. Resource 5: "Using a 35mm SLR Camera" outlines the typical procedure used for a 35mm camera that requires manual loading.

STUDENT ACTIVITIES

1. Demonstrate and describe correct handling of an SLR camera and have students practise:
 - holding the camera correctly
 - adjusting the aperture
 - adjusting the shutter speed

Community Partnerships

2. Invite a professional photographer to demonstrate correct handling practices and to provide tips to the beginning photographer.
3. If possible, have students provide general assistance to and observe the school photographer or the professional hired to produce student I.D.'s. Have students discuss the way in which a professional photographer operates and the type of equipment he or she uses.

BASIC COMPOSITION

Composition is the term used to describe the way in which a photographer sets up the content of the scene or person to be photographed. (See Resource 6: "Composing a Photograph".)

DEVELOPING FILM

Film may be developed manually in a darkroom or automatically by machine. The majority of black and white photography is developed manually.

The procedure shown in Resource 7: "Developing Film" may be adjusted to suit the available facilities and equipment.

CONTACT PRINTING

A contact print is made by exposing a piece of light sensitive material, usually printing paper, through a negative with the two materials in direct contact with each other (i.e., emulsion to emulsion).

A contact print is used in determining whether or not a negative will make a satisfactory enlargement before you do your enlarging. There are two methods which you can use to make a contact print:

- plate glass method (see Resource 8: "Making a Contact Print (Plate Glass Method)")
- commercial contact print maker (see Resource 9: "Making a Contact Print (Commercial Contact Print Making Method)").

GUIDES TO GOOD PHOTOGRAPHY

1. Keep equipment clean. Pay particular attention to the lens, front and rear. Use a soft brush for loose dust and special lens cleaning tissue for other marks.
2. Focus the camera carefully.
3. Hold the camera steady. Always use a tripod with slow shutter speeds.

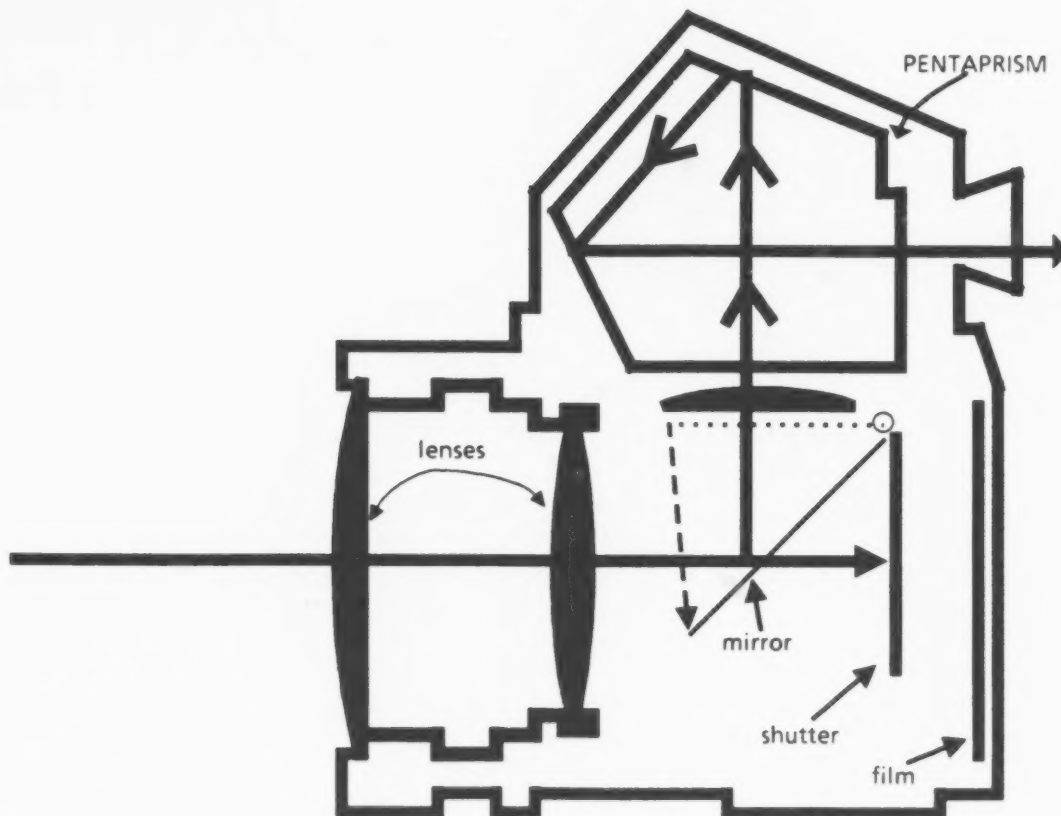
4. Use the correct exposure. If possible, use an exposure meter.
5. Always follow the instructions when developing film.
6. Choose the proper film for the job. Consider what you wish to portray in the final print before taking a picture.
7. Be sure that the printing equipment and accessories are clean and free from dust. Pay particular attention to the lens and other parts of the camera (such as the enlarger and glass plates) used in contact printing.

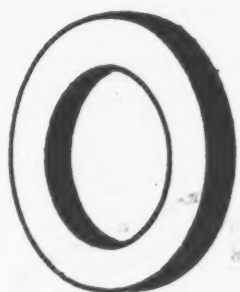
CAREERS AND OCCUPATIONS IN VISUAL COMMUNICATIONS

Resource 1

CAREER AREA	RELATED OCCUPATIONS	MAJOR TASKS IN EACH OCCUPATION
Photography	• • •	
Printing	• • •	
Composing	• • •	
Lithography	• • •	
Bookbinding	• • •	
Advertising	• • •	

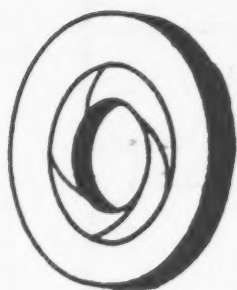
356





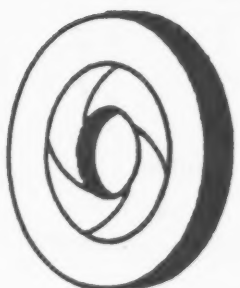
f/5.6

Full intensity



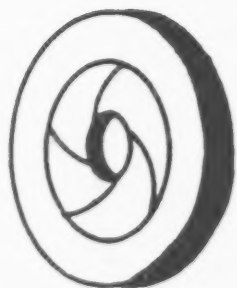
f/8

1/2 intensity



f/11

1/4 intensity



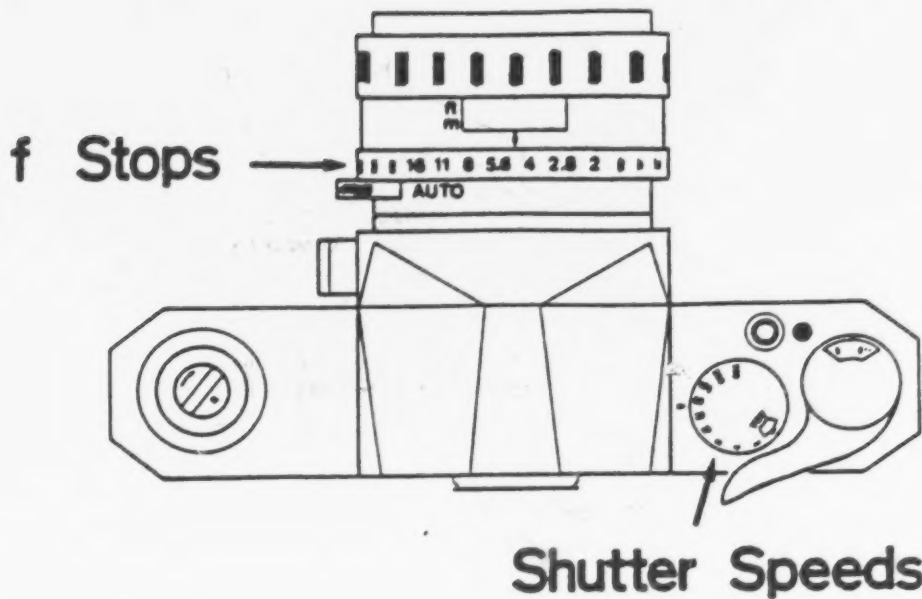
f/16

1/8 intensity

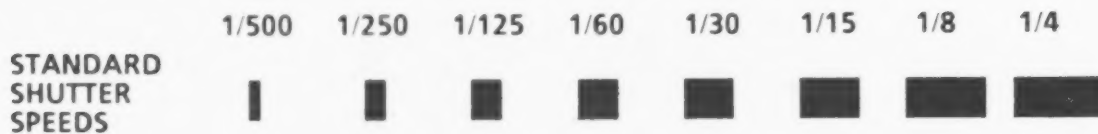
358

SHUTTER SPEEDS

Resource 4



1. Each successive f-stop represents either 1/2x or 2x the adjacent one.
2. The larger the f-stop number, the smaller the aperture.

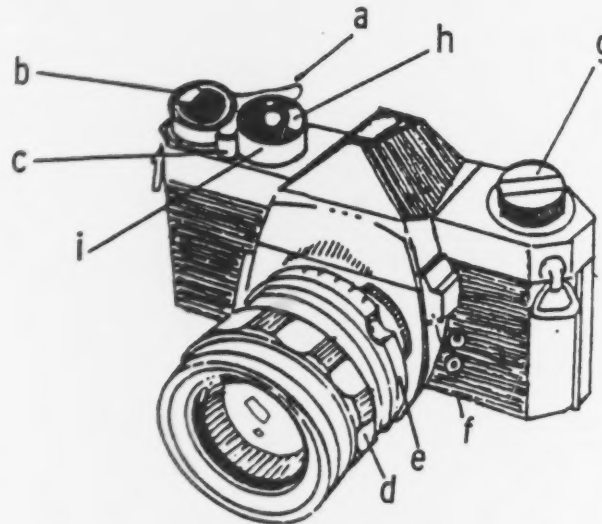


1. Each successive shutter speed represents a speed either 1/2x or 2x the previous.
2. Shown shutter speeds are in fractions of seconds.

USING A 35MM SLR CAMERA

Resource 5

The 35mm full-frame slide camera may be used to produce pictures that can be made into slides or prints.

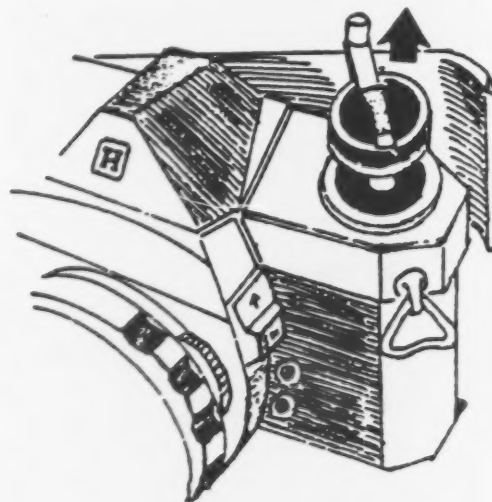


- Parts of the camera:

- a. Film advance
- b. Frame counter
- c. Shutter release
- d. Focus ring
- e. f-stop ring

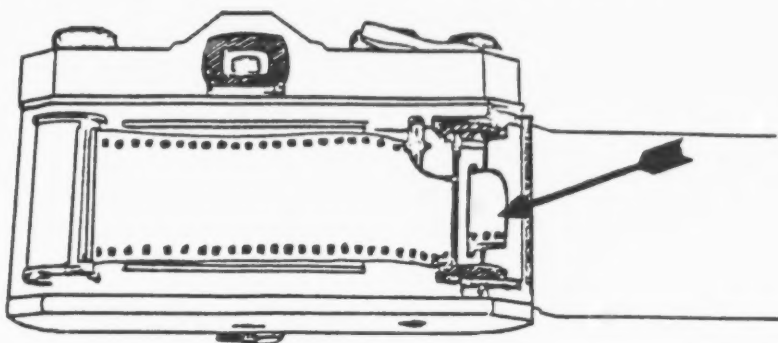
- f. Light meter button
- g. Rewind crank (knob)
- h. ASA window (film speed)
- i. Shutter speed dial

- To open the camera, grasp the rewind crank and lift up.

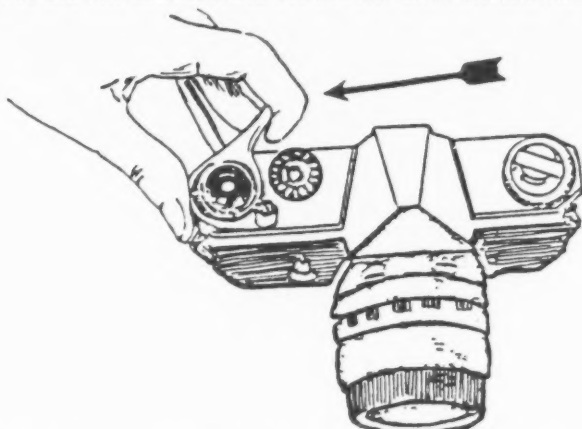


360

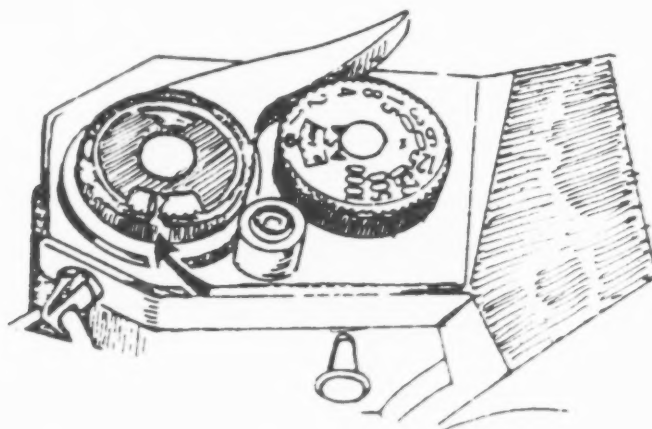
- To load the camera, place a cassette in the film compartment and press rewind knob into position. Advance the film until the leader extends sufficiently to be inserted into the take-up spool. Engage perforations on sprockets; then, employ the film advance lever and shutter release once or twice to tighten and secure the film. Close the camera back.



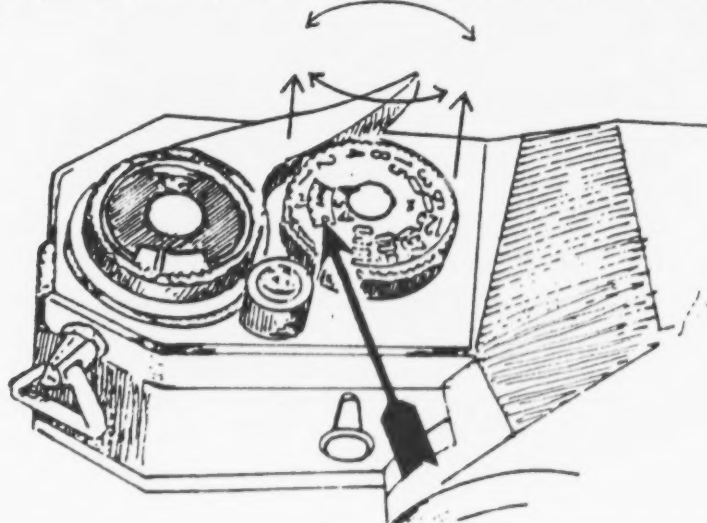
- Advance the film and actuate the shutter until the counter shows number one (1).



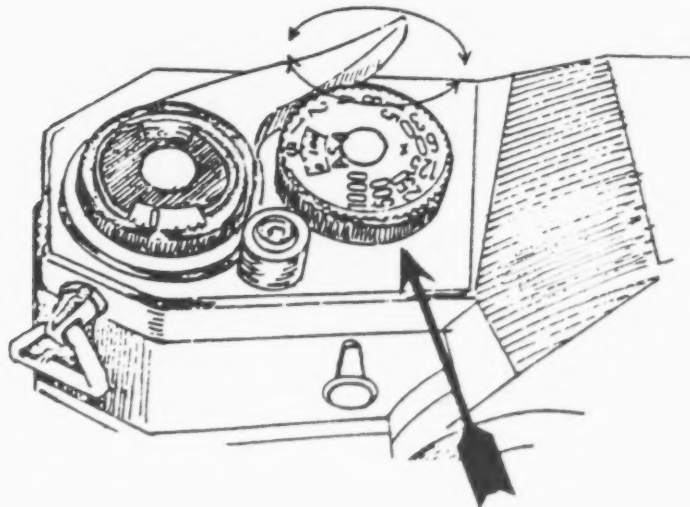
(Note: As the film is exposed, the counter will move from (1) to (20) or to (36) depending on the number of exposures in the cassette. When all frames have been exposed, the film is rewound either automatically (on some cameras) or by hand.)



- Adjust the film speed on the shutter speed dial. Pull up on the dial ring and turn it until the proper speed appears in the window. ASA (film speed) ratings are in 100's with divisions in between. Find the nearest setting. Note: The film speed is indicated in the literature that is packed with the film.



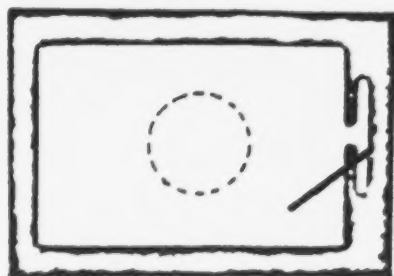
- Adjust the shutter speed by turning the dial to the desired speed. For most subjects, use an average speed; for still subjects, the speed should be very slow; for subjects that are moving rapidly, a high speed will be needed.



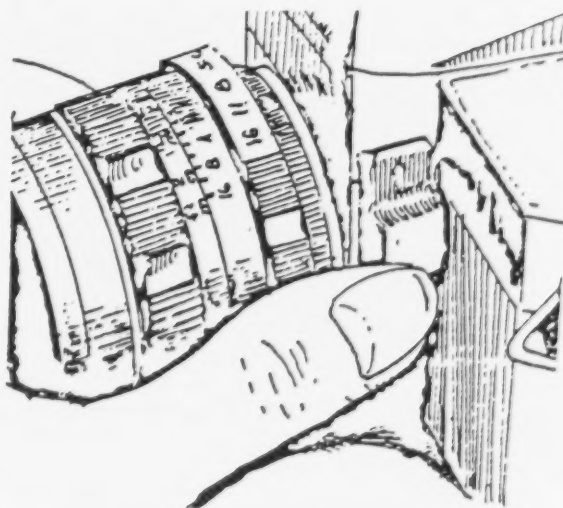
- Adjust the f-stop as follows:
 - (a) View your subject through the view finder.
 - (b) Push the light meter button, found on the left side of the lens base, upward until the needle on the internal meter is actuated.
 - (c) Turn the f-stop ring until the needle rests in the middle of the scale (half way between + and -).

(d) Return the button to its original position. You now have the correct exposure.

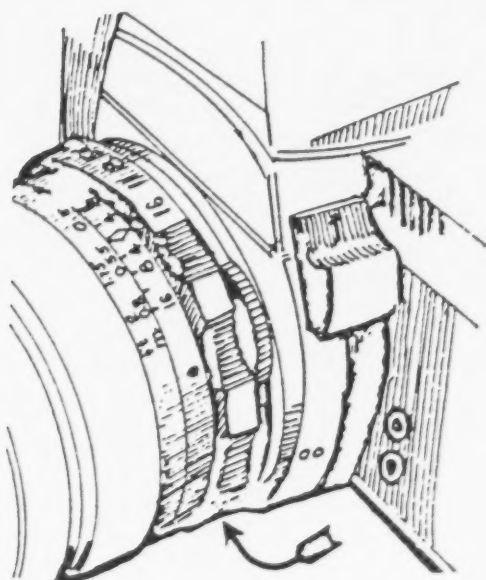
HERE ARE THE STEPS ILLUSTRATED:



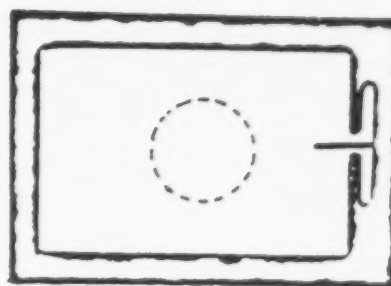
(1) Viewfinder; light meter not activated



(2) Push light meter button upward



(3) Turn the f-stop ring

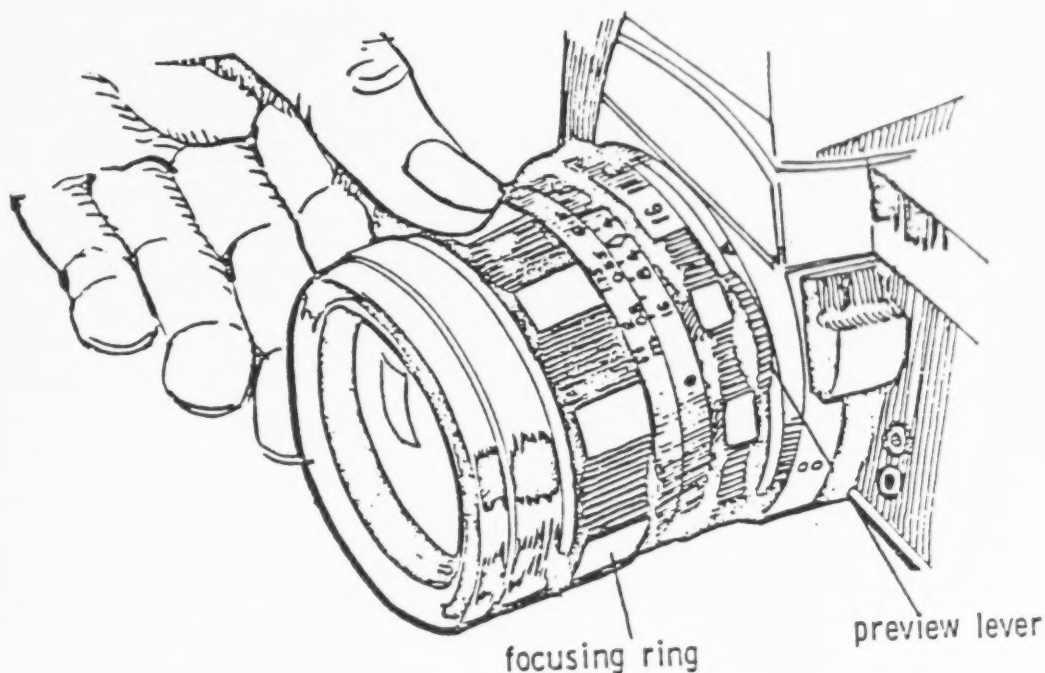


(4) Correct position of meter needle

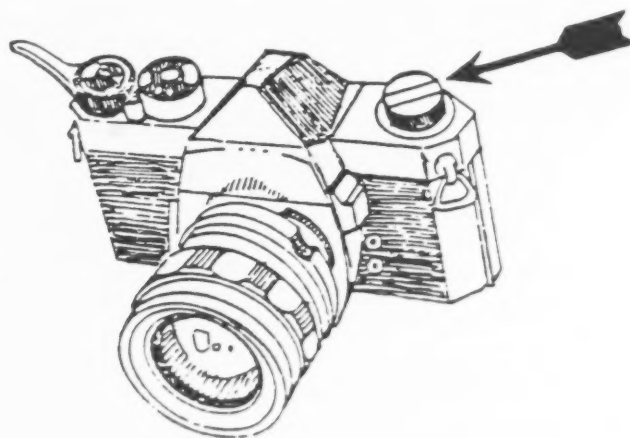
Now, return the meter button to its original position.

- Focus on the subject by turning the focusing ring in either direction until the subject appears clear and sharp.

(Note: The sharpest focus is obtained when the aperture is at its largest opening. The diaphragm opens automatically when the preview lever is in "A" position.)



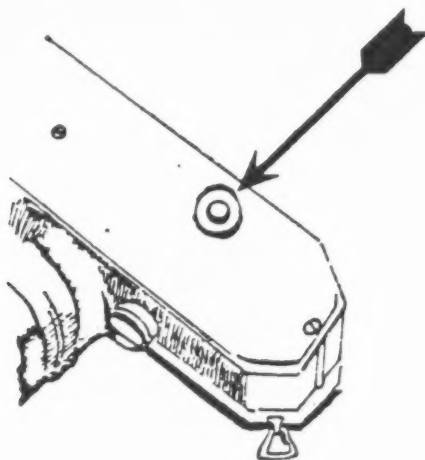
- Photograph the subject. As the film advances, check the rewind knob occasionally to make sure that it is turning. If it is not, the film is not engaged and is not advancing.



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Resource 5 (cont'd)

- Rewind the exposed film by depressing the rewind button and rewinding the film back into the cassette by cranking the rewind crank. Remove the cassette from the camera. You are now ready to process the film.



COMPOSING A PHOTOGRAPH

Resource 6

Composition refers to the impact of a picture. Impact results when the subject matter is of popular interest, has a specific viewpoint, and has strong images and lines.

Some of the important steps to good composition are:

- **KEEP IT SIMPLE.** Good pictures usually have a single idea, uncomplicated by extra details. A picture can be kept simple by making close-ups or choosing a simple, uncluttered background.
- **MOVE IN CLOSE.** Moving in close is one of the easiest things you can do to give a picture impact. Pictures of people should almost always be close-ups in order to show the detail of your subject expressions.
- **KEEP YOUR SUBJECTS BUSY.** People look relaxed and natural when they are busy doing something.
- **INCLUDE FOREGROUND IN SCENIC PICTURES.** Including foreground objects in scenic photographs will give your pictures a feeling of depth and dimension. For example, use objects in the foreground to put a frame around your main subject. Shooting a scene through the branches of a tree will give a nice frame for a mountain or building. In scenic pictures, avoid splitting the picture with the horizon in the middle -- keep it either high or low.
- **USE FIGURES.** Placing a few people in the foreground of a scenic panorama will add interest, balance, and perspective and will offer the viewer a feeling that he or she is part of the scene.
- **WATCH THE BACKGROUND.** A confusing, jumbled background can ruin an otherwise perfect picture. Make it a habit to look beyond the subject before releasing the shutter. For example, take the picture at a low angle and let the sky be your background, or use a large lens opening to throw a busy background out of focus.
- **THINK BEFORE SNAPPING THE SHUTTER.** Decide what to say. Take several pictures of the subject from different angles. Use archways, leaves or branches as a frame for the picture.
- **PUT VARIETY INTO PICTURES.** Good picture subjects are all around. Look for the unusual.

Student Activities

1. Look in the newspaper and magazines and identify pictures that have good composition.
2. Bring photographs that you have taken and discuss their composition.
3. Design and produce a poster/collage that demonstrates good composition.

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DEVELOPING FILM

Resource 7

Materials

- exposed roll of film (practice roll)
- developing tank
- scissors
- chemicals – developer, stop bath, fixer
- funnel
- film squeegees
- watch or timer

(Note: This activity must be performed in a photographic darkroom.)

Procedure

The overall procedure for developing film and processing prints is shown in the model below:

PROCESSING		
DEVELOPING THE FILM	STEPS	PROCESSING THE PRINT
	DEVELOPER STOP BATH FIXER WASH DRY	
NEGATIVE		PRINT

1. Place the film in a tank.
2. Use the following chart to determine the time to develop the film (check ASA numbers).

ASA	DEVELOPER	STOP BATH	FIXER
125	5 min	30 sec - 1 min	5 - 10 min
400	7½ min	30 sec - 1 min	5 - 10 min

3. Pour D-76 developer into the tank through the centre hole until the solution begins to overflow out the three side ports.
4. Set the timer or watch the clock for the required amount of time.
5. Tap the tank gently against a sink or table edge to dislodge any air bubbles on the film surface.

6. Gently shake the tank every thirty seconds.
 - a. After 30 seconds of developing time has passed, agitate the film by placing the stir stick into the centre hole in the tank until it engages into the slots.
 - b. Rotate the stir stick back and forth between the thumb and forefinger for FIVE SECONDS ONLY.
7. After the required amount of time has elapsed, pour the developer out one of the drainage holes provided in the side of the developing tank.

(NOTE: DO NOT OPEN THE DEVELOPING TANK TO DO THIS.)

8. Discard the developer by pouring it down the sink. Be sure to flush the used developer down the sink with running water and rinse the sink thoroughly.
9. Pour the stop bath into the developing tank through the centre hole in the lid. Fill the tank until the liquid begins to come out of the drainage holes.
10. Time for one minute and agitate every 30 seconds.
11. Pour out the stop bath through the drainage holes in the side of the tank. Pour the stop bath back into its container using the funnel.

(NOTE: DO NOT OPEN THE DEVELOPING TANK TO DO THIS.)

12. Pour in the fixer solution through the centre hole in the developing tank lid. Fill the tank until the fixer comes out of the drainage holes.
13. Set the timer or watch the clock for at least 5 minutes. Agitate every 30 seconds as explained previously.
14. While the film is in the fixer solution, wash out the funnel.
15. After the time has elapsed, pour the fixer back into its container using the funnel.
16. Remove the lid from the developing tank.
17. Remove the film reel from the tank and carefully pull the reel halves apart.
18. Remove the film from the reel.
19. Wash the film gently for at least 30 minutes.
 - (a) Place it in the film washer and connect the base to the washer.
 - (b) Turn on the hot and cold taps to achieve a water temperature about that of room temperature.
 - (c) Turn the pressure on just enough to produce a gentle swirling motion within the tank.
20. Turn the taps off and remove the film.
21. Pour some photo-flow solution into the tank. Soak the film in this solution for about 1 minute. Be careful to handle the film by the edges only. Photo-flow allows the film to dry with no water spots on its surface.

22. Remove the film from the tank. With a film squeegee, hold the film at one end and make one pass only to clean off excess solution.
23. Hang the film up to dry.
24. Return the photo-flow solution to its container for later use.
25. Wash out the tank and reel. Leave the reel disassembled so that it will dry quickly. Turn the tank upside down.
26. Wash all other tools used including the funnel and film squeegee.
27. Make sure all the chemicals are in their proper storage containers and that the containers are tightly capped.
28. Remember... the developer you used should be thrown away.
29. Empty any excess water into the sink and flush the sink clean.
30. Put away all equipment in its correct place.
31. Wipe the counters with wet paper towels and dry them thoroughly with fresh paper towels.

Student Activities

1. How does the development process of black and white film differ from colour film development? Which process is more complex? Why?
2. Black and white film is still frequently used by both amateur and professional photographers. Why?
3. Visit a local shop that operates an automatic film developing and printing machine. Identify and record the advantages and disadvantages of these machines:
 - to the photographer
 - to the person who wants a roll of colour film processed
 - to the person who wants a roll of black and white film developed.

MAKING A CONTACT PRINT (PLATE GLASS METHOD)

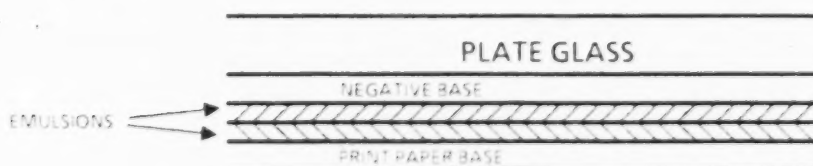
Resource 8

Materials

- developed roll of negatives
- 3 processing trays
- chemicals – developer, stop bath, fixer
- 5" x 7" print paper – polycontrast
- 5" x 7" sheet of plate glass
- enlarger
- yellow safelights
- magnifying glass

Procedure

1. Cut the film into lengths of four frames each.
2. Set out chemicals from left to right in order of use; e.g., Dectol, Stop bath, Fixer, Running water.
3. Check the operation of the enlarger. (The teacher or supervisor will demonstrate how to use the enlarger.)
4. Check the operation of the safelights.
5. Set the aperture on the enlarger to f/8
6. Turn off the main lights and turn on the safelights.
7. Remove a piece of 5" x 7" paper from the package.
(Note: Return the package to its proper storage place immediately after removing the sheet.)
8. Remove the easel. Place the print paper below the enlarger so that the emulsion side faces up. The shiny side is the emulsion side of the paper.
9. Place the negatives on the paper with the emulsion side down. The emulsion side of the negative is the dull side.
(Note: Another way to make sure the paper and negatives are correct is to remember this rule "Paper-curl up, negative – curl down".)
10. Ensure that the negatives do not overlap and that they are all on the paper.
11. Place the 5" x 7" piece of plate glass on the negatives to produce a sandwich. Make certain the plate glass is clean.



12. Set the enlarger timer for 10 seconds and press the centre button of the timer. Make sure that all of the paper is covered by the enlarger light.
13. Remove the plate glass and the negatives and place the print paper in the developer.
14. Gently agitate the developing tray containing the print for 2 minutes.
15. Remove the print and place it in the stop bath. Gently agitate for 30 seconds.
16. Remove the print from the stop bath and put it into the fixer for 5-10 minutes.
17. Remove from the fixer and wash in running water for 30 minutes.
18. Dry the print.
19. Clean up and return all equipment to its proper place.
20. Use the magnifying glass to check each print. Save all negatives and the contact print. They can be used in a future learning activity.

Student Activities

1. What should be looked for when examining the print with a magnifying glass?
2. What may a photographer do with the "good" contact prints?
3. What are the advantages and disadvantages of using black and white film?

Materials

- developed roll of negatives
- 3 processing trays
- chemicals – developer, stop bath, fixer
- 5" x 7" print paper – polycontrast
- enlarger
- yellow safelights
- magnifying glass

Procedure

1. Check safelights and contact printer.
2. Set out the chemicals in order of use – developer, stop bath and fixer.
3. Take a small piece of print paper from its container. (Remember to put the rest back in the cupboard in the closed container.)
4. Place the frame that is to be printed over the printing paper. (Put both emulsion sides together.)
5. Place the negative and paper sandwich on the surface of the contact printer. (Put the negative down first with the paper on top.)
6. Touch the button in the lower left corner of the contact printer lightly and briefly. (The light should turn off for about $\frac{1}{2}$ to 1 second.)
7. Remove the print paper and process it as you did in the plate glass method.
8. Wash and dry the print as in the plate glass method.
9. Examine the print. If it is too light, repeat the process and expose it longer. If it is too dark, repeat the process and reduce exposure time.
10. Clean up and return all equipment to its proper place.
11. Examine prints with magnifying glass.
12. Save prints and negatives.

Student Activities

1. What are the advantages of using a commercial contact printer?
2. Why do photographers produce contact prints?
 - What decisions do contact prints permit photographers to make?
 - Is there a cost saving to photographers in making contact prints before making enlargements? Why?

THEME: Techniques with Technology
LEARNING ACTIVITY: Going In Circuits
GRADE (suggested): 8
TIME (suggested): 8-10 hours

LEARNING OBJECTIVES:

The student will:

Concepts:

- understand the basic principles of an electrical circuit
- recognize the various components of an electrical circuit

Skills:

- read a simple circuit drawing
- demonstrate ability to set up a simple and parallel circuit
- demonstrate ability to set up a practice telephone circuit

Attitudes:

- appreciate the value of schematic drawings
- display safety consciousness when handling electricity and electrical tools and appliances

RESOURCES:

Student Resources

General Industrial Education, Glencoe Publishing Company, Bennett McKnight Division, 1988

Materials required for each resource activity are listed for each activity

Correlation of Learning Activity with Student Resource

Concepts, Skills and Attitudes	<i>General Industrial Education</i>
Electricity: • purpose of electricity • safety • circuits • electrical measurements and meters	p. 1 pp. 2-4 pp. 13-15 pp. 16-18

TEACHER BACKGROUND INFORMATION

This learning activity will introduce students to basic electrical circuitry. Resources 2-7 require students to connect various electrical equipment to a low voltage battery, to use a multimeter, ammeter, voltmeter and ohmmeter to take measurements within different circuits. Resource 8 may be used as an integration across the curriculum activity. The telephone circuitry that students construct may be used for practising telephone techniques in business education classes (see the learning activity "The Telephone: Making the Connection", in the theme "All About Business").

The content of this learning activity may be related to the use of electricity in occupations within each of the eight occupational clusters:

- Agribusiness
- Business and Office Operations
- Construction and Fabrication
- Creative Arts
- Natural Resources
- Personal and Public Services
- Tourism and Hospitality
- Transportation

ELECTRIC METERS AND MEASURES

Meters

Electric meters are used in the home, the school and in the workplace. Meters may be used to record:

- **amount** of electricity used
- **amperage** or strength of electrical currents
- **resistance** in a circuit
- **voltage** or pressure of an electrical current.

The student activities contained in this learning activity will enable students to gain awareness of the following measuring devices:

- multimeter – a meter that is able to measure more than one type of electrical measurement
- ohmmeter – measures resistance
- voltmeter – measures in volts
- ammeter – measures in amperes or amps
- watt – a measurement of electrical power

Although the amount of electricity to be used in the student activities in this unit is very small and will not cause any harm, there are a few safety precautions that should be followed when working with electricity of any strength.

- Always hold meter leads by their insulated handles. You do not want to become part of the circuit.
- Wherever possible, avoid using both hands when measuring. This will prevent your whole body from becoming part of the circuit.
- Always work with dry hands. Wet hands can cause the electricity to be conducted through the body.

Measures

Electrical meters used to measure the amount of energy used in a house, school, or other building measure electrical energy in WATTS.

$$\text{WATTS} = \text{Current} \times \text{voltage}$$

For example, a typical electric toaster is rated at 1 200 WATTS.

This means that at 120 VOLTS (typical household voltage), the current flow would be 10 AMP.

$$1\,200 \text{ WATTS} = 10 \text{ AMP} \times 120 \text{ VOLTS}$$

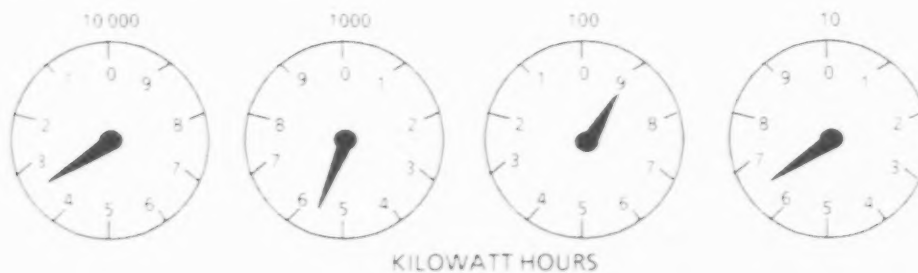
If a toaster were used continuously for 10 hours (don't try this of course) it would use

$$1\,200 \times 10 = 12\,000 \text{ WATT HOURS OF ELECTRICITY}$$

This would usually be written as 12 KILOWATTS (kw) of electricity. (KILO = 1000)

The power used in a building is measured by the electrical company through the use of a WATT HOUR METER attached to the wires leading into your home. There are usually four dials on the meter:

- the first measures from 1 000 to 10 000
- the second measures from 100 to 1 000
- the third measures from 1 to 100
- the fourth measures from 1 to 10.



The reading on the above dials is (NOTE THE DIRECTION OF DIAL ROTATION!):

- from the first dial 3000
- from the second dial 500
- from the third dial 80
- from the fourth dial 7

TOTAL KILOWATT HOURS 3 587

STUDENT ACTIVITIES

1. Have students read and record meter readings shown in Resource 1: "Meter Readings".
2. Demonstrate and describe the procedure for reading and recording the readings from various types of electrical meters. Have students practise reading and recording readings from various meters.
3. Discuss the use of meters in other measuring and control systems.

Community Partnerships

4. Visit the school's electrical control area and have students identify the metering systems in place.
5. Invite meter readers from the local utility companies (electricity, water, gas, telephone) to describe the purpose and operation of meters.
6. Have students read and record the electrical, gas and water meter readings on their home for one week and total the consumption of each utility used.

THE PURPOSE OF ELECTRICITY

Electricity is a form of energy. Like other forms of energy, electricity can be used for many purposes; e.g., heating, lighting, to provide mechanical energy.

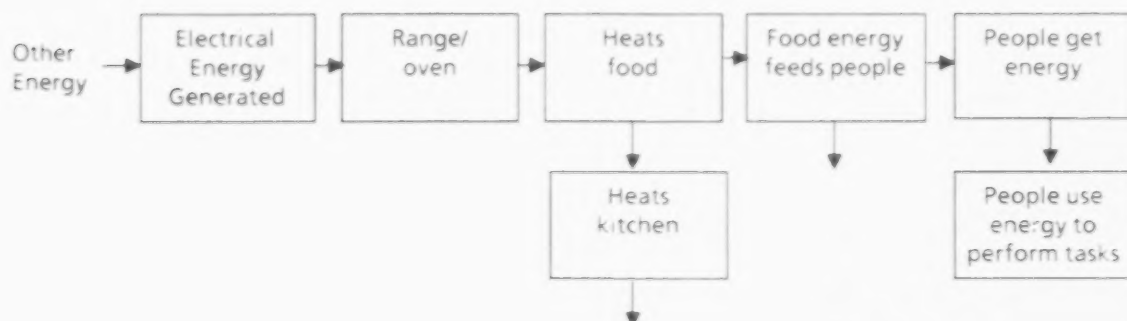
Newton's First Law:

Energy can neither be created nor destroyed, it can only be changed from one form of energy to another.

Electricity is used in so many areas of our life it is difficult to imagine what people did before electricity was discovered.

STUDENT ACTIVITIES

1. Brainstorm and/or discuss:
 - "What is electricity used for?"
 - "What could electricity be used for?"
 - "What did people do before electricity was invented?"
2. Discuss Newton's First Law. What does it mean?
3. Have students provide examples of electrical energy being changed to other forms of energy. Have them draw a map to show a multiple conversion of one form of energy to others.



ELECTRICAL SAFETY

Electricity can be dangerous and can cause severe injuries if used without proper care and safety. The following rules apply when handling all batteries, electrical tools and appliances.

1. Equipment, even though safe when purchased, can develop leakage current, breaks in frayed cords or other hazards over a period of time. Proper maintenance or repair is essential. Lack of specific instruction in the use of electricity and electrical equipment, failure to understand how it works, neglect, abuse and improper use are the reasons for accidents caused by human failure.
2. Avoid using electrical tools or appliances where wet conditions exist. If necessary to do so, be sure equipment is certified for this usage and properly grounded or double insulated. Keep radios and other electrical appliances out of the bathroom.
3. Be especially careful not to contact overhead wires when installing television antenna, when using aluminum ladders, sail boat masts, etc.
4. Keep appliances in good condition, have them repaired by qualified persons, and use them properly.
5. Properly ground all portable tools except those marked "double insulated".
6. Keep moisture and electricity separate. Moisture makes your body a very good conductor of electricity and the danger of shock is greatly increased with wet or damp skin.
7. Fuses or circuit breakers are "safety valves" to protect against overloading. If a fuse blows or the circuit breaker pops open, it indicates something is wrong. The principal causes may be a short circuit, overloaded circuit or defective cord or equipment. Never insert new fuses with a higher ampere rating than the one removed. Most house wiring is designed for 15 ampere rating fusing.

STUDENT ACTIVITIES

1. Have students research the meaning of the letters "CSA" found on most electrical tools and appliances, and discuss the importance of electrical standards.
2. Brainstorm to identify safe and unsafe methods of handling electricity and electrical appliances, e.g.:
 - replacing a fuse
 - replacing a light bulb or fluorescent tube
 - handling a portable power drill.

Community Partnerships

3. Invite a journeyman electrician to discuss the dangers and the benefits of electricity.
4. Encourage students to visit department and other stores and identify electrical tools and appliances that are CSA approved.
5. Have students carry-out a "safety inspection" of electrical outlets, tools, appliances around the school and report on damaged equipment, frayed wires, etc.

CIRCUITS

A circuit has three main parts:

- Source – origin of the electricity; e.g., battery
- Conductor – material that carries electricity; e.g., wire
- Load – power required to change electrical energy into some other form of energy; e.g., light, mechanical movement.

STUDENT ACTIVITIES

1. Have students read and discuss the following sections of the text

General Industrial Education: Electricity: pp. 1-8, 13-17

2. Describe and demonstrate a simple electrical circuit. Have each student construct a simple circuit and take meter readings as shown in Resource 2: "Constructing a Simple Electric Circuit"
3. Describe and demonstrate a parallel circuit. Have students use Resource 3: "Constructing a Parallel Electrical Circuit" as a guide to constructing a parallel circuit and taking meter readings
4. Describe and demonstrate circuits used to control electricity. Have students construct a control circuit (see Resource 4: "Controlling Electricity")
5. Describe and demonstrate the purpose of a rheostat. Have students connect a rheostat into a simple circuit (see Resource 5: "Using a Rheostat")
6. Describe and demonstrate the use of a gate in an electrical circuit. Have students use Resource 6: "Electrical Gates" and respond to the discussion questions
7. Describe and demonstrate an electrical relay. Have students complete Resource 7: "An Electrical Relay"

Community Partnerships

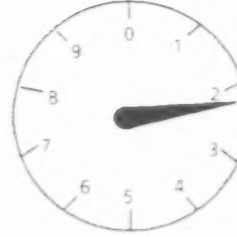
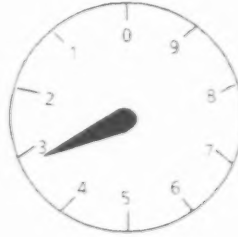
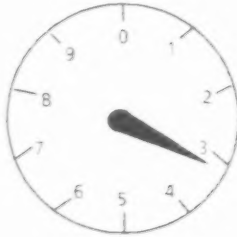
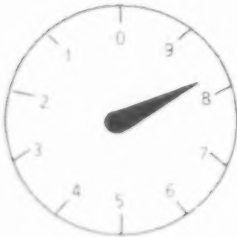
8. Invite an electrician, telephone engineer, a school custodian or a high school electricity teacher to describe and demonstrate how electrical circuitry affects the way most people live
9. Plan cooperatively with the I.O.P. business education teacher and have students set up and use the product from Resource 8: "Getting on Line" in the learning activity, "The Telephone: Making the Connection"
10. Arrange for students to visit community partners, an electrical generating station, a telephone switching station, the school's electrical control room, etc.

METER READINGS

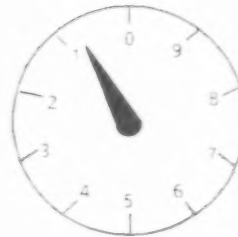
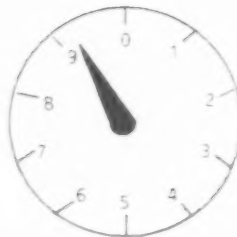
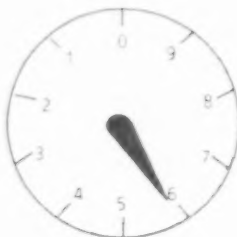
Resource 1

Write the readings below each of the following meters:

1.



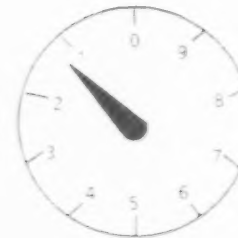
2.



3.



4.



CONSTRUCTING A SIMPLE ELECTRIC CIRCUIT

Resource 2

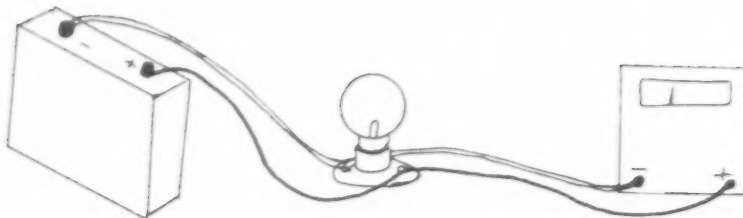
Materials

- battery (6 volts)
- wire
- 3 lamps of equal rating
- ammeter
- ohmmeter
- voltmeter

Procedure

1. Connect one lamp to the battery as shown.

Fig. 1

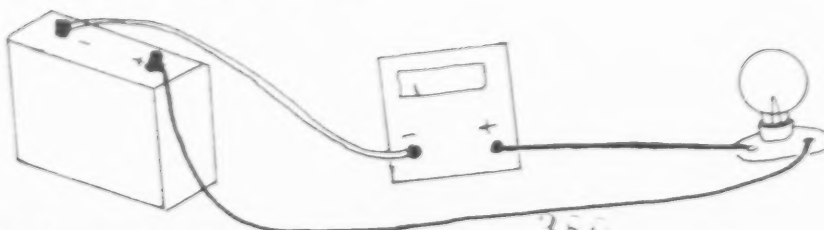


2. Use the voltmeter to measure the battery voltage and the voltage across the lamp. Record the readings in the first column of the following chart.

Chart 1

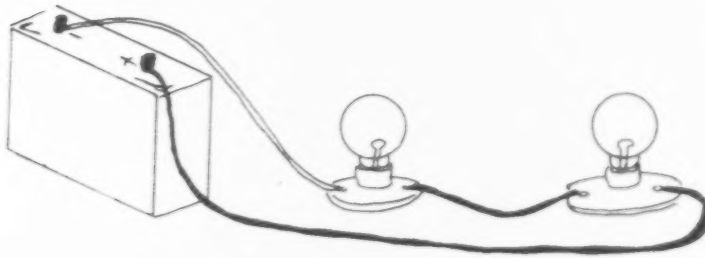
Source Voltage	Voltage Drop at Lamp	Current Strength

3. Connect the ammeter into the circuit.

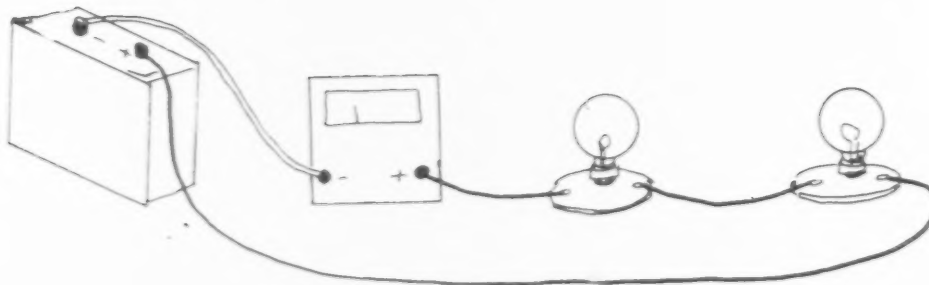


Resource 2 (cont'd)

4. Measure the strength of the current (amperage) on the ammeter and record the readings in Chart 1.
5. Connect two lamps to the battery.



6. Use the voltmeter to measure the battery voltage across each lamp and record the readings in the table.
7. Connect the ammeter into the circuit.

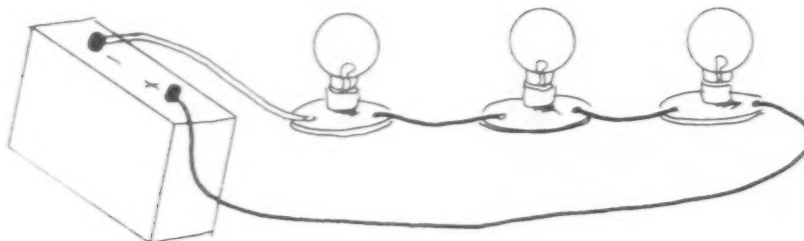


8. Read and record the current strength in Chart 2.

Chart 2

Source	Voltage Drop at Lamp 1	Voltage Drop at Lamp 2	Current

9. Connect three lamps to the battery as shown.

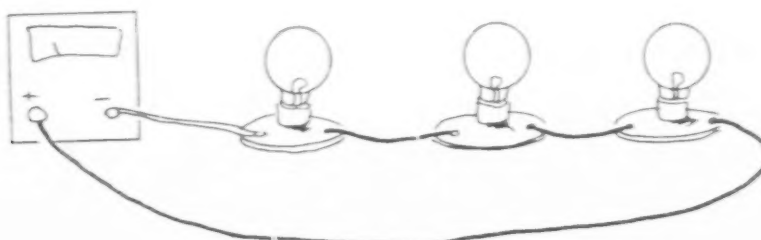


10. Use the voltmeter to measure the voltage across each lamp and record the information in Chart 3.
11. Measure the amperage in the circuit and record the information in Chart 3.

Chart 3

Storage Voltage	Voltage Drop at Lamp 1	Voltage Drop at Lamp 2	Voltage Drop at Lamp 3	Current

12. Disconnect the battery from the circuit and connect the ohmmeter as shown.



- 13 Measure and record the circuit resistance in Chart 4

Chart 4

CIRCUIT RESISTANCE	LAMP 1 RESISTANCE	LAMP 2 RESISTANCE	LAMP 3 RESISTANCE

- 14 Measure and record the resistance of each lamp in the circuit

Discussion Topics

- 1
 - a With the single lamp, what was the:
 - voltage
 - current, and
 - resistance of a single lamp?
 - b Multiply the current by the resistance. This is OHM's Law

$$\text{VOLTS} = \text{AMPS} \times \text{OHMS}$$

$$\text{or } E = I \times R$$
 - c What number is this similar to?
- 2
 - a What happened to the brightness of the lamps when two lamps were placed in the circuit?
 - b What happened to the brightness of the lamps when three lamps were placed in the circuit?
 - c Is this a good kind of circuit to use for wiring your house? Why or why not?
- 3 Look at the tables from the two and three lamp circuits. If you add the voltage drops in the circuit, what do they equal?
 (Note: KIRCHHOFF'S VOLTAGE LAW - "The sum of the voltage drops in a circuit are equal to the source voltage")
- 4 Add the resistances of all the lamps together. Do they equal the total resistance of the circuit?
 (Note: In a series circuit, the total resistance of the circuit is equal to the sum of all the individual resistances in the circuit. This information can be shown in the equation

$$\text{RESISTANCE TOTAL} = \text{RESISTANCE 1} + \text{RESISTANCE 2} + \text{RESISTANCE 3 or } R_t = R_1 + R_2 + R_3$$

CONSTRUCTING A PARALLEL ELECTRICAL CIRCUIT

Resource 3

Materials

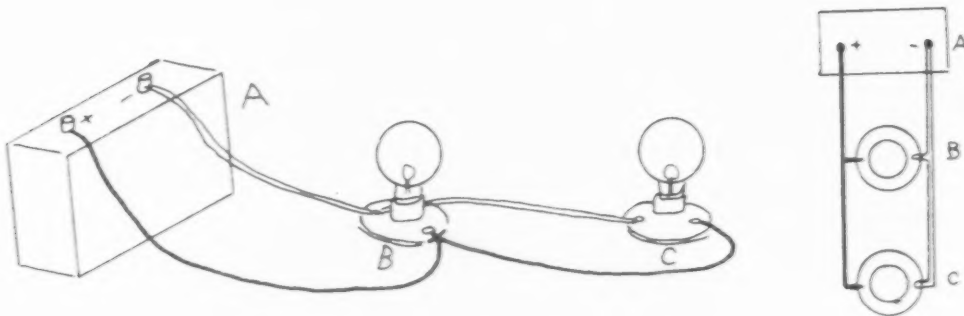
- battery
- electrical wire
- 3 lamps of equal rating
- multimeter

Procedure

1. Connect one lamp to the battery.
2. Measure and record the voltage at the battery and the voltage at the lamp

SOURCE VOLTAGE	VOLTAGE DROP	CURRENT STRENGTH

3. Connect two lamps as shown.



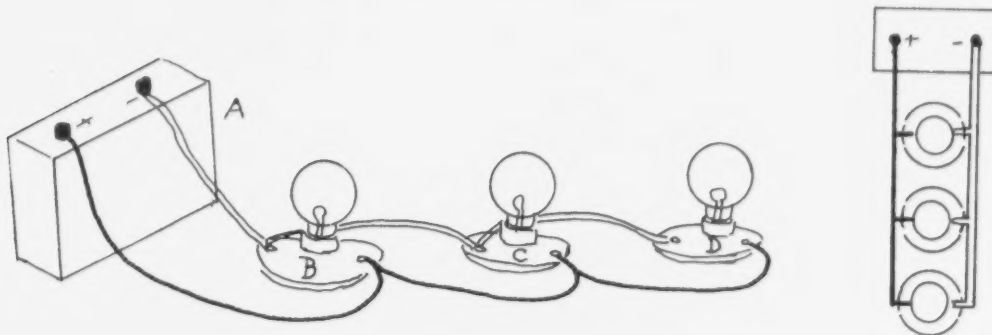
4. Use the voltmeter to measure the voltage across the battery and the voltage areas of each lamp. Record the readings in Chart 2

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5. Measure the current at points A, B and C and record the readings.

SOURCE VOLTS	VOLTAGE LAMP 1	VOLTAGE LAMP 2	CIRCUIT CURRENT	CURRENT LAMP 1	CURRENT LAMP 2

6. Connect the circuit as shown below. Measure battery voltage at each lamp and current at points A, B and C. Record these readings.



SOURCE VOLTAGE		CIRCUIT CURRENT	
VOLTAGE-LAMP 1		CURRENT-LAMP 1	
VOLTAGE-LAMP 2		CURRENT-LAMP 2	
VOLTAGE-LAMP 3		CURRENT-LAMP 3	

7. Disconnect the battery
- Measure the total circuit resistance
 - Measure the resistance at each lamp.

Record the reading in the following chart.

CIRCUIT TOTAL RESISTANCE	LAMP 1 RESISTANCE	LAMP 2 RESISTANCE	LAMP 3 RESISTANCE

Discussion Topics

1.
 - a. When two lamps were used, what did you notice about the brightness of the lamps?
 - b. What do you know about voltages in a parallel circuit?
 - c. Would this kind of circuit be useful for house wiring? Why?
2. What did you find out about the current (amperages) in the parallel circuit? (Try adding the current at each lamp together and compare this to the total circuit current.)

KIRCHHOFF'S CURRENT LAW

3. Compare the total circuit resistance to the individual resistances of each lamp. What did you find?

Note: In a parallel circuit, the resistance of the total circuit is ALWAYS less than any individual resistance in the circuit.

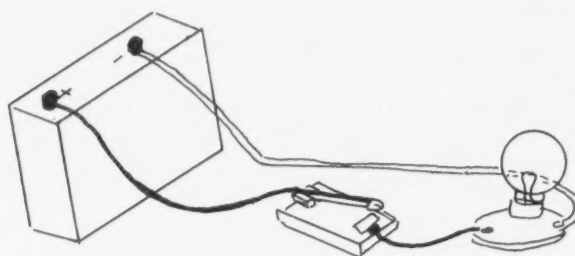
Materials

- knife switch
- a normally open push-button switch
- a normally closed push-button switch
- lamp
- battery
- electrical wire

Procedure

1. Connect the circuit as shown. Use the knife switch.

Fig. 1



2. Open and close the circuit.
3. Remove the knife switch and alternatively connect first the normally open push-button switch and then the normally closed push-button switch.
4. Open and close the circuit with both types of push-button switches.

Discussion Topics

1. Where would you use a knife switch, or a switch similar to a knife switch?
2. What does "normally open" mean? Where would this kind of switch be used?
3. What does "normally closed" mean? Where would this kind of switch be used?

USING A RHEOSTAT

Resource 5

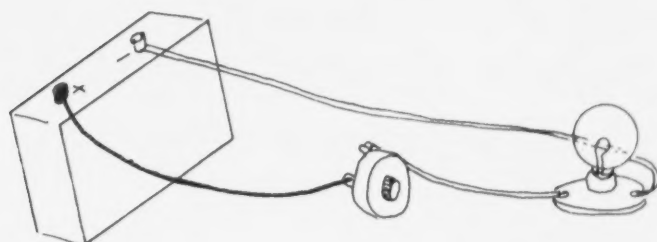
A rheostat is an instrument for regulating the strength of an electrical current.

Materials

- battery
- lamp
- rheostat
- electrical wire

Procedure

1. Connect the circuit as shown.



2. Turn the rheostat in both directions and observe the brightness of the lamp.

Discussion Topics

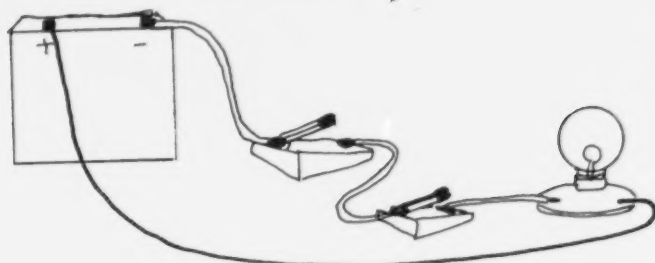
1. What happens as the rheostat is turned?
2. Some of the electrical energy that was originally being turned to light is now being turned to some other form of energy. Can you guess what kind? (Hint - leave the lamp on for a while and feel the rheostat.)
3. Where and when might a rheostat be used?

Materials

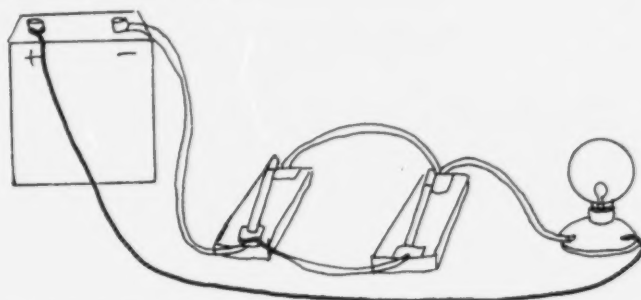
- 2 batteries
- 2 lamps
- electrical wire
- knife switch

Procedure

1. Connect the AND circuit as shown.



2. Connect the OR circuit as shown.



3. In each of the two circuits:
 - (a) Close switch one and leave switch two open. What happens?
 - (b) Close switch two and leave switch one open. What happens?
 - (c) Close both switches. What happens?

Discussion Topics

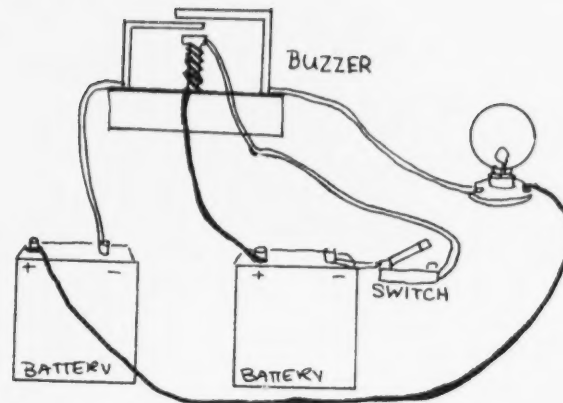
1. What is meant by an AND CIRCUIT?
Where would this circuit be used? (Hint - think about using a dispensing machine)
2. What is meant by an OR CIRCUIT?
Where would this circuit be used?

Materials

- 2 batteries
- buzzer
- lamp
- electrical wire
- switch (push-button as knife)

Procedure

1. Connect the circuits as shown.



2. Open and close the switch.

Discussion Topics

1. What happened when the switch was open? Why?
2. What happened when the switch was closed? Why?
3. Relays are used to allow a SMALL current to pass through and to control a LARGE current flow; for example: automotive horns and windshield wipers. Explain how a relay works. (Hint: switch and wire size.)

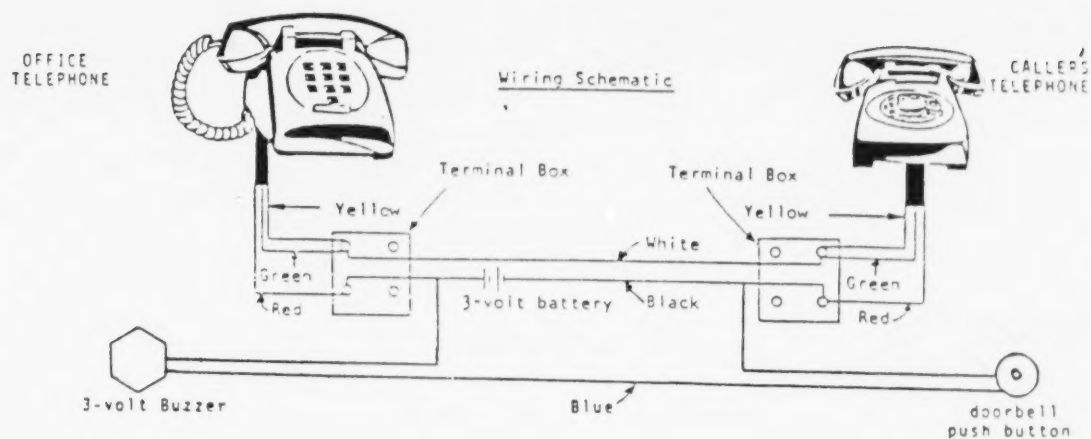
390

Materials

- 2 telephones
- 2 terminal boxes
- 3-volt battery
- 3-volt buzzer
- push-button doorbell
- white and black telephone wire

Procedure

1. Connect the telephone circuit as shown in the diagram below.

**Discussion Topics**

1. What changes in the circuit would permit three people to talk to one another at the same time?
2. Visit a telephone switching station and enquire how calls are charged to individual telephones.
3. This circuit will allow a "caller" to "ring" but does not allow the person receiving the call to ring out. Why?
4. When the telephone is on the hook (hung-up), the battery will not be drained and may be left in the circuit. Why?

THEME: Techniques with Technology
LEARNING ACTIVITY: Heavy Metal
GRADE (suggested): 8
TIME (suggested): 10-12 hours

LEARNING OBJECTIVES:

The student will:	
Concepts:	
- understand the basic principles of metalwork - recognize the relationship between metalwork and related career fields	
Skills:	
- demonstrate the ability to follow detailed instructions - begin to develop skill in working with metals	
Attitudes:	
- appreciate the scope of the metalwork industry - display pride in personal performance and production	

RESOURCES:

Tools, equipment and other materials required in this learning activity are listed at the beginning of Resource 1: "Constructing a Sheet Metal Memo Pad Holder" and Resource 2: "Constructing a Metal Dust Pan".

Student Resources

General Industrial Education, Glencoe Publishing Company, Bennett and McKnight Division, 1988.

Correlation of Learning Activity with Student Resource

Concepts, Skills and Attitudes	<i>General Industrial Education</i>
Metalwork: - Careers - Safety - Metals - Cutting - Filing - Drilling - Fastening - Soldering - Riveting - Additional Projects	p. 86 p. 2 pp. 5-8 pp. 9-11 pp. 12-15 pp. 16-26 pp. 30-32 pp. 44-46 p. 47 pp. 39-85

TEACHER BACKGROUND INFORMATION

This learning activity is designed to introduce students to metalworking. The two projects outlined in this learning activity may be supplemented or complemented with additional tasks or projects at the teacher's discretion.

The concepts, skills and attitudes that students acquire through the learning activity can be related to the metalworking industries in general and to various occupations within the eight occupational clusters that provide the focus of the I.O.P. Practical Arts courses.

CAREERS

The ability to work with metals can be applied to a wide range of careers and hobbies. Metalworkers are found in a variety of industries including:

- automotives
- aeronautics
- farm equipment manufacturers
- household appliance manufacturers
- mechanical construction firms (e.g., bridges)
- jewellery manufacturers.

Metalworkers, both skilled and semi-skilled, are involved in the production of a wide range of household, school and workplace products. In addition, craftspersons use a variety of metalworking techniques to produce wall hangings, jewellery and other decorative metalwork.

STUDENT ACTIVITIES

- 1 Brainstorm to identify the products made of metal that are commonly used in the home, the school and in the workplace.
- 2 Have students select an occupational area (e.g., agricultural mechanics, automotive services) and research the tools, equipment and other products that are used in that occupation. Have students share their findings with the class.
- 3 Using the school and community libraries, trade magazines and journals, etc., have students identify the range of job opportunities available to a trained metalworker.

Community Partnerships

4. Have students visit a local high school and/or a post-secondary institution to identify the range of metalwork related courses available. Have them categorize these courses into three groups:
 - Career Related
 - Hobby Related
 - Potential Entrepreneurial Activities
5. Arrange for students to visit a local business operation that employs metalworkers and have the students identify the tasks that each metalworker performs in the different workplaces. Job shadowing and mentorships will increase students' awareness of the scope of the metalwork industry.
6. Invite a variety of metalworkers to demonstrate, describe and discuss the work they do. Guests may include:
 - sheet metalworker
 - foundry worker
 - jeweller
 - art metalworker
 - welder

SAFETY PRACTICES

Review general safety procedures as outlined in *General Industrial Education* (p 2) and in the Learning Activity: "Safety, the Tools of the Trade".

Ensure that each student has received instruction and that each has developed an appropriate level of safety awareness before being permitted to use any tool or piece of equipment.

STUDENT PROJECTS

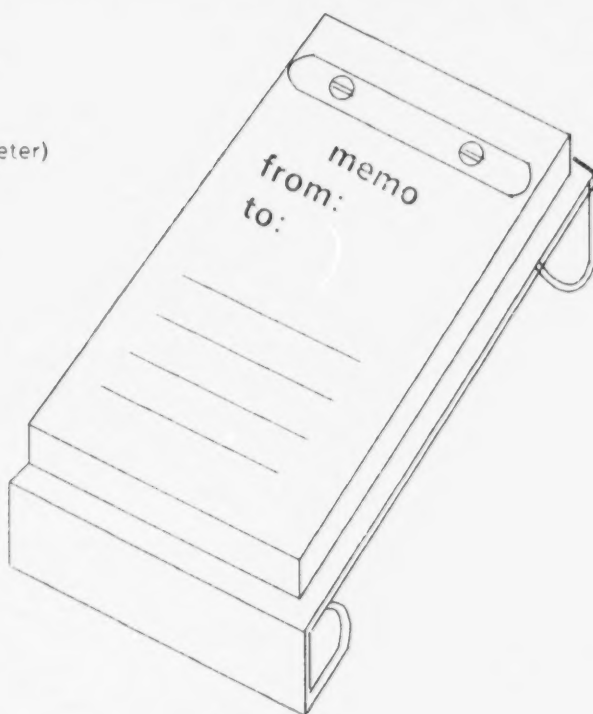
Resource 1 outlines the materials required and the procedures that should be followed in "Constructing a Sheet Metal Memo Pad Holder".

Resource 2 outlines the materials required and the procedures that should be followed in "Constructing a Metal Dust Pan".

As an enrichment activity, teachers may consider using one or more of the additional project suggestions contained in *General Industrial Education* (pp. 39-84) and/or permit students to design and produce a metalwork project of their own choosing.

Materials

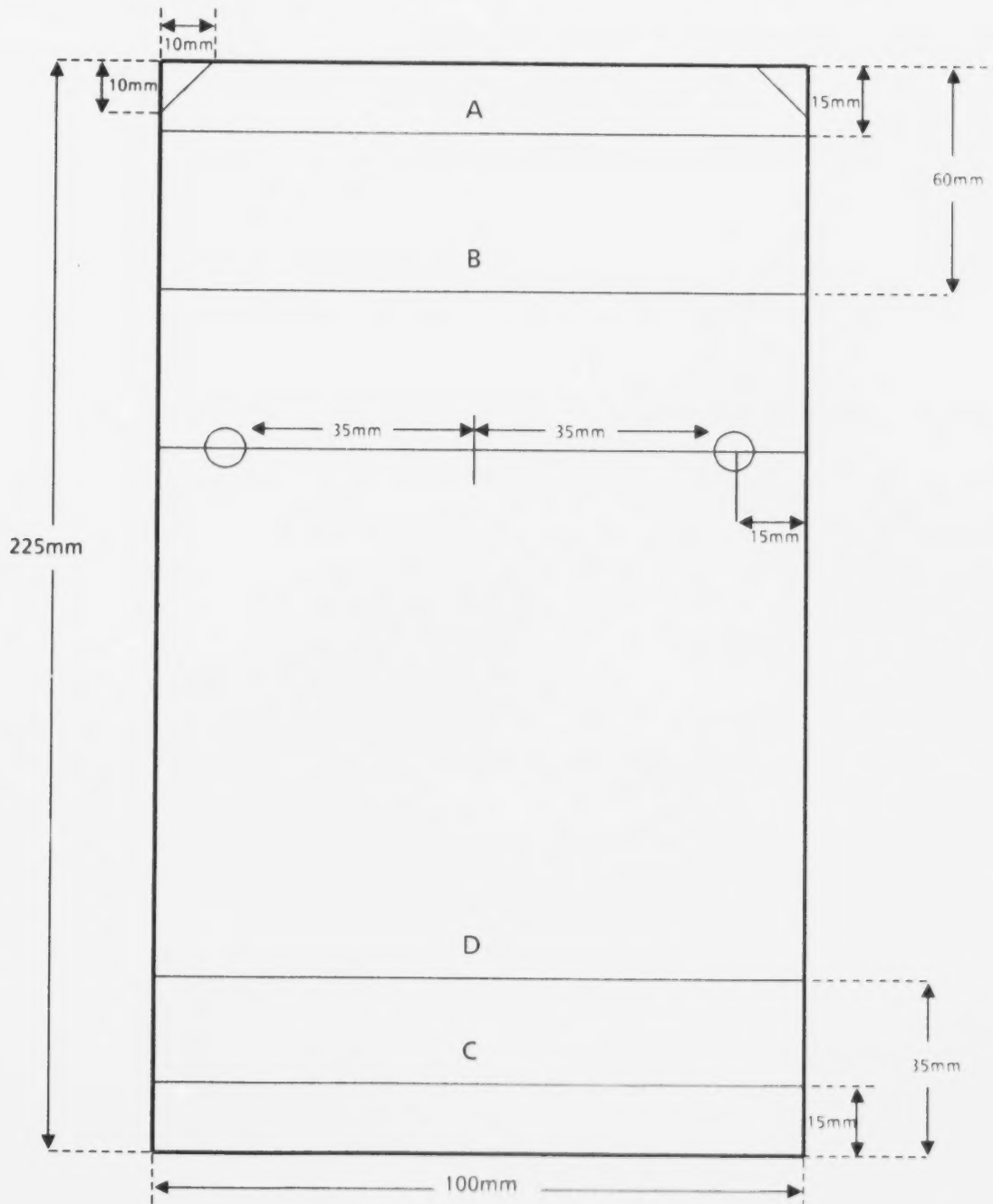
- sheet metal (100mm x 225mm)
- sheet metal (100mm x 20mm)
- 2 stove bolts (2.5cm x 6mm diameter)
- ruler
- tri-square
- scratch awl
- pencil
- tin snips
- files
- hammer
- sheet metal braker
- Whitney punch and 6mm bits
- steel wool/emery cloth
- centre punch
- eye protectors

**Procedure**

1. Using the 100mm x 225mm piece of sheet metal, accurately measure out 10mm in each direction from each corner and join each pair of points marked with a line (Fig. 1).
(Note: Use the scratch awl or a pencil to mark the points and to draw the lines.)
2. Carefully use tin snips and remove these corner pieces.
3. Use a file to round these corners and then remove all burrs and low spots from all edges.
4. Use steel wool to finish and smooth all edges.
5. Carefully lay out bending and hole position lines as shown in Fig. 2.
6. Centre punch the marks where the bolts are to go by:
 - (a) measuring 60mm down from each side of the top of the 100mm x 225mm piece of sheet metal (the end with the snipped corners), draw a line
 - (b) find and mark the centre of this line
 - (c) measure 35mm from each side of the centre and mark these points. These are the points where the bolts will be placed
7. Centre punch the points where the bolts will be placed

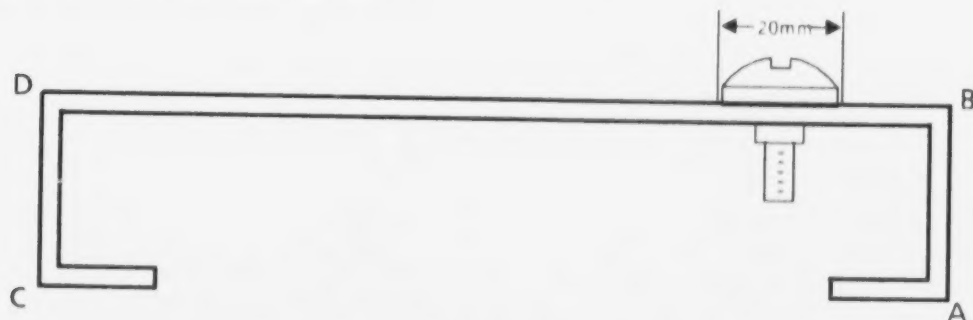
8. Take the other piece of sheet metal (100mm x 20mm) and:
 - (a) using a file, carefully round each of the corners and remove all burrs
 - (b) finish with steel wool.
9. Measure and mark a centre line along the 100mm length and measure 15mm in from each end
10. Centre punch these points.
11. Use a Whitney punch and a 6mm bit and carefully punch the two holes marked on each piece of sheet metal.
12. Use files and steel wool to smooth and finish the holes.
13. Measure and mark lines A, B and C and carefully and accurately use the sheet metal brake to bend the metal into shape. Follow the order shown in Fig. 2. (See Resource 3: "Metal Shaping and Bending Machine")
14. Install stove bolts.
15. Clean up work area.
16. Return all materials to their correct storage areas.

Fig. 1: Layout of Measurements for Constructing a Sheet Metal Memo Pad Holder



Use the sheet metal brake to bend the 100mm x 225mm piece of sheet metal along the lines A, B, C, D.

Fig. 2: Sheet Metal Bending Instructions

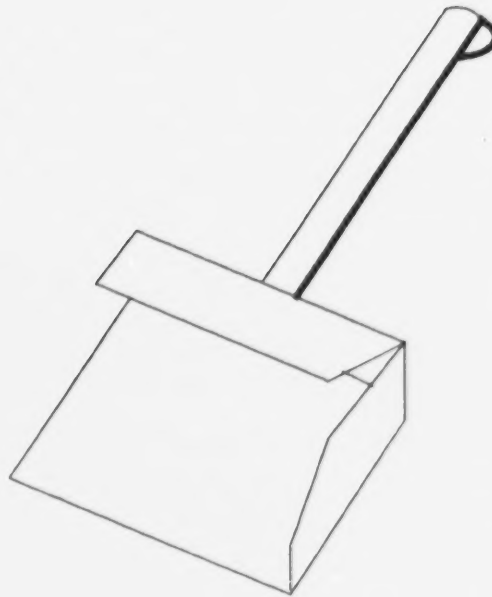


CONSTRUCTING A METAL DUST PAN

Resource 2

Materials

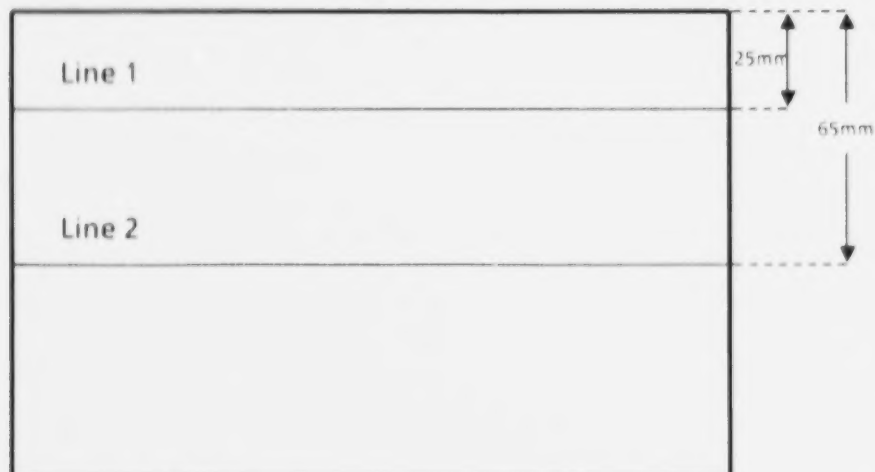
- sheet metal (150mm x 190mm)
- sheet metal (13mm x 200mm)
- tin snips
- files
- steel wool/emery cloth
- soldering materials
- sheet metal brake
- circle bender
- riveting tool and 2 rivets
- metal forming stake
- ruler
- tri-square
- scratch awl
- pencil
- centre punch
- drill press and 4mm drill bit



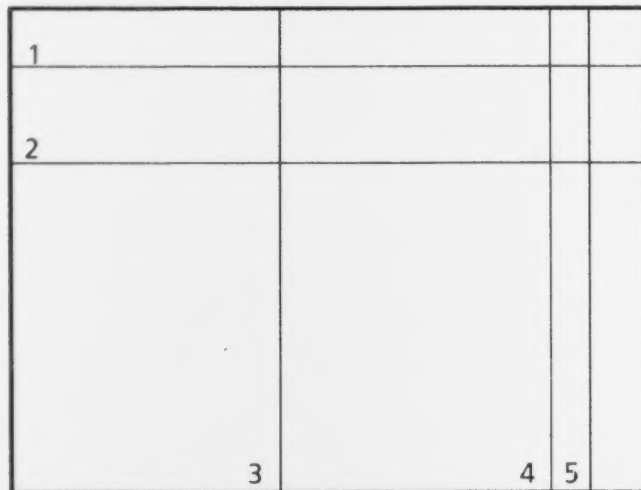
Procedure

Constructing the Pan

1. Position the 150mm x 190mm piece of sheet metal on the work surface with the long side horizontal. Label it "TOP".
2. From the top edge, measure and mark points 25mm and 65mm down both the right and left sides of the sheet metal
3. Draw a line to join the two 25mm points and the two 65mm points. Label these lines 1 and 2.

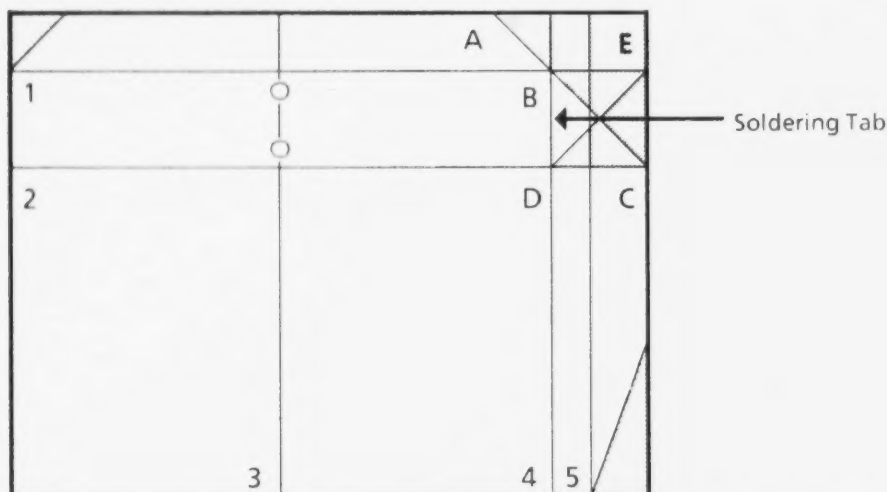


4. Starting from the top left edge of the sheet metal, measure and mark points at 75mm, 150mm, 165mm.
5. Repeat step 4 starting from the bottom left edge.
6. Join the corresponding pairs of points together and label these lines 3, 4, and 5 as shown.



7. Measure down 35mm and 55mm from the top edge of line #3 and mark these points.
8. Centre punch the two marks.
9. Use the drill press and 4mm bit to drill holes at the centre punch marks.
(See Resource 4: "The Drill Press – Safety".)
10. Use a file and steel wool to file the burrs from around the holes.
11. Measure 25mm from the top left corner of the sheet metal. Mark this point.
12. Join this point to the corner where line #1 meets the left hand edge of the metal, forming a triangle.
13. From the point where line #4 meets the top edge, measure 25mm toward the left edge. Mark this point.
14. Locate and mark the following points
 - Point A – Point made in step #13.
 - Point B – Where line #1 and line #4 cross each other.
 - Point C – Where line #2 meets the right edge of the metal.
 - Point D – Where line #2 and line #4 cross each other.
 - Point E – Where line #1 meets the right edge of the metal.

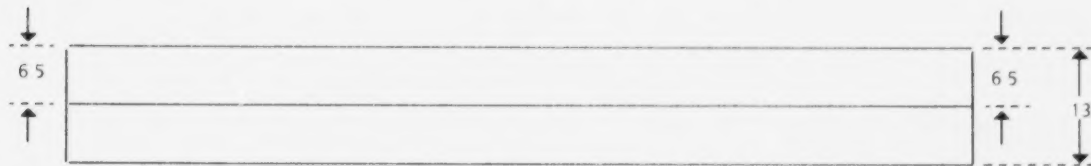
15. Join the following points.
 - (a) Join points A, B and C together to form a straight line.
 - (b) Join points D and E together to form a straight line.
16. On the top right edge of the piece of metal, measure down 100mm and place a mark. Label the point "F".
17. Join point F with the bottom of Line #5 to form a straight line.



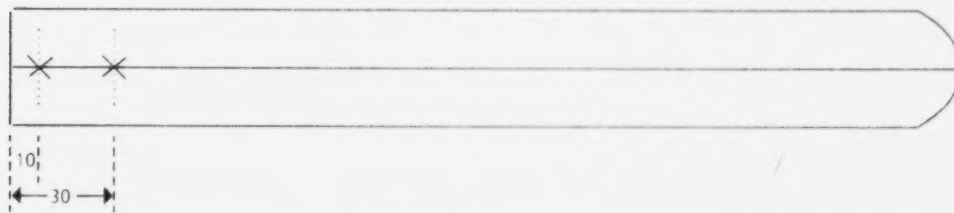
18. Plug in the soldering iron.
19. Cut off the unwanted metal (the shaded areas).
20. Use the sheet metal brake and bend the metal to 90° on line #4 and line #1, making sure that the soldering tab is on the outside of the dust pan. (See Resource 3: "Metal Shaping and Bending Machines")
21. Turn the pan around and use the sheet metal brake to bend line #2 to 90° . The back of the pan should be touching the side of the pan.
22. Solder the soldering tab to the side of the dust pan. (Ensure that the tab sits completely flat before soldering)

Constructing the Handle

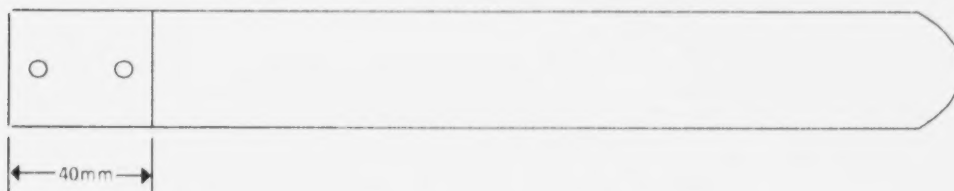
23. Lay out a centre line on the 13mm x 200mm piece of sheet metal by measuring 6.5mm in from each end along the 200mm side.



24. File one end of the 200mm piece round and the other end flat.
25. From the flat filed end, measure along the centre line and place a mark at the 10mm and 30mm points as shown. Centre punch the two points.



26. Use the drill press and 4mm drill bit and drill the two holes.
27. Use a file and steel wool to remove burrs from around the holes.
28. From the filed square end, measure and mark 40mm from both sides of the metal and draw a line. Draw a line to connect the two points. This line is used to guide the bending.



29. Use the sheet metal brake and bend the handle to a comfortable angle.
30. Obtain the 1/4R pin for the circle bender.

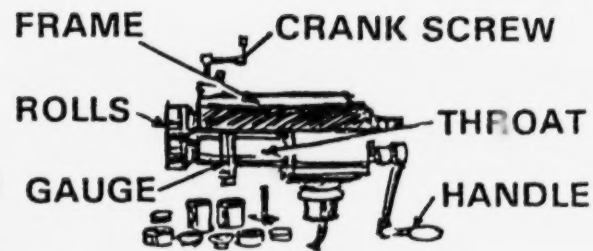
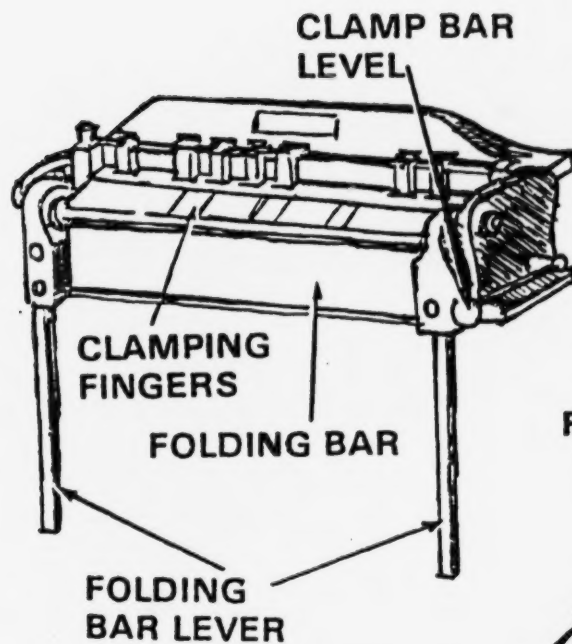
31. Bend the filed round end of the handle to form a circle. The handle should look similar to the diagram below:



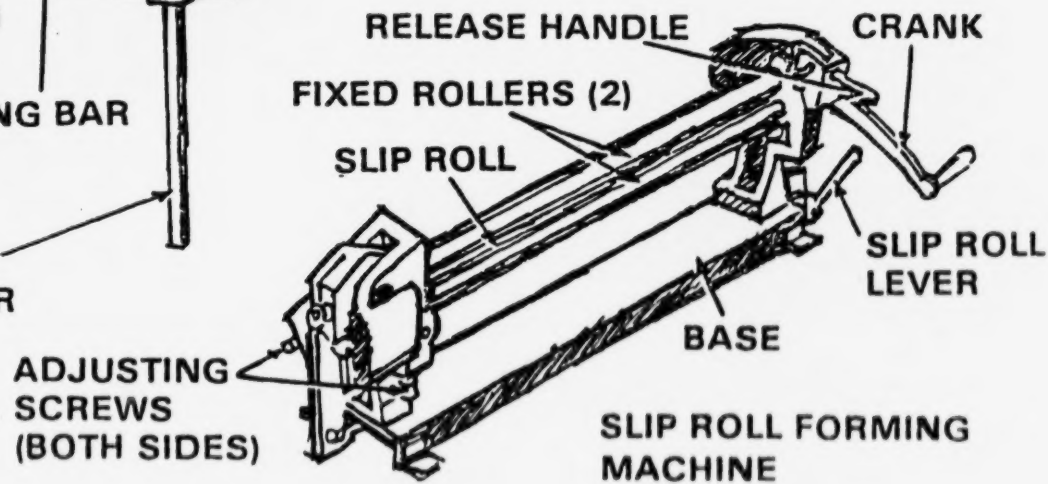
Connecting the Handle to the Pan

32. Using a riveter and two rivets, rivet the dust pan to the handle from the inside.
33. Using a metal forming stake, hammer the rivets flat after riveting them.
34. Use a file to remove the excess solder.
35. Use a piece of emery cloth or steel wool and polish the solder joint until it is smooth.
36. Give the completed dust pan the "WATER TEST" by filling it up with water and checking the solder joint for leaks.
37. If any leaks show, repair them with solder, file off the excess solder. Emery or steel wool the soldered area and check again with the "Water Test".
38. If no leaks are indicated, dry the dust pan completely.
39. Use the sandpaper to remove any sharp spots.
40. The completed dust pan may be painted with an appropriate paint if desired.
41. Clean up the work area.
42. Return materials to their correct storage areas.

1. Operate only with the teacher's or supervisor's permission and after completing "Safe Operating Procedures Checklist" given as part of this resource.
2. Remove all jewellery (rings, watches, bracelets, neck chains, etc.).
3. Tie back long hair.
4. Wear protective clothing.
5. Have the teacher or supervisor adjust, change rolls, set stops, and properly assemble the equipment before using.
6. Work with only one piece of metal at a time.
7. Do not use double thickness or two pieces of metal side by side.
8. Remove burrs from a piece of metal before attempting to work it in a machine.
9. Keep hands away from clamps, jaws, rolls and other pinch points.
10. Never force hit or drop levers or handles.



ROTARY MACHINE



METAL SHAPING AND BENDING MACHINE – SAFE OPERATING PROCEDURES CHECKLIST

Instructions: Each item must be checked (✓) and the completed sheet signed by both the student and the teacher or supervisor. Completion of the checklist indicates basic competency in operating a specific metal shaping and bending machine.

Type of Machine: _____

BEFORE OPERATING MACHINE

- | | |
|---|---------|
| 1. Remove jewellery and secure all loose clothing | 1 _____ |
| 2. Tie back long hair | 2 _____ |
| 3. Wear safety clothing | 3 _____ |
| 4. Check to see that the leaf does not bind against the teeth, allow thickness of metal to be bent. | 4 _____ |
| 5. Check to see that teeth hold stock firm before bending leaf. | 5 _____ |
| 6. Keep others away from machine while in use, for clearance on leaf arms. | 6 _____ |
| 7. Keep fingers from beneath fingers on brake | 7 _____ |
| 8. Never bend or form anything but sheet metal with the machine. | 8 _____ |
| 9. Check capacity of sheet metal on the machine | 9 _____ |

I have demonstrated or completed all of the above checked items to the satisfaction of the teacher or supervisor.

Student's Signature

Teacher's/Supervisor's Signature

THE DRILL PRESS – SAFETY

Resource 4

1. Operate only with the teacher's or supervisor's permission and after completing the "Safe Operating Procedures Checklist".
2. Eye protection must be worn at all times while working on the drill press.
3. Remove all jewellery (rings, watches, bracelets, neck chains, etc).
4. Tie back long hair.
5. Remove chuck key immediately after installing or removing a bit.
6. Auger bits are never to be used in a drill press.
7. Brush the table with a shop brush, never with your hand.
8. Drill table hole must be directly under bit to avoid damage to the table.
9. If at all possible use a scrap block of wood to drill into under the work piece.
10. To prevent injury to the hand when working on the drill press, always secure your work piece to the table by either clamping for large pieces or using a vise or jig for small pieces.
11. Make all setup adjustments such as table height, depth stop, and fastening material to table before machine is turned on.
12. If the drill press is equipped with a step cone pulley, set the desired speed before turning the motor on.
13. Generally, large holes and hard material are drilled at slow speeds. Small holes and soft materials are drilled at fast speeds.
14. The bit should be withdrawn frequently when drilling large or deep holes to prevent damage to the bit.
15. Work the centres of holes with a centre punch.

DRILL PRESS – SAFE OPERATING PROCEDURES CHECKLIST Resource 4 (cont'd)

Instructions: Each item must be checked (✓) and the completed sheet signed by both the student and the teacher or supervisor. Completion of the checklist indicates basic competency in operating a drill press.

BEFORE STARTING MACHINE

- | | |
|--|----------|
| 1. Remove jewellery and secure all loose clothing. | 1. _____ |
| 2. Tie back long hair. | 2. _____ |
| 3. Wear safety clothing. | 3. _____ |
| 4. Hold work with vise or clamp. | 4. _____ |
| 5. Check speeds for size and type of metal. | 5. _____ |
| 6. Keep guards in place. | 6. _____ |
| 7. Remove key or drift from chuck. | 7. _____ |
| 8. Check with instructor for special jobs. | 8. _____ |

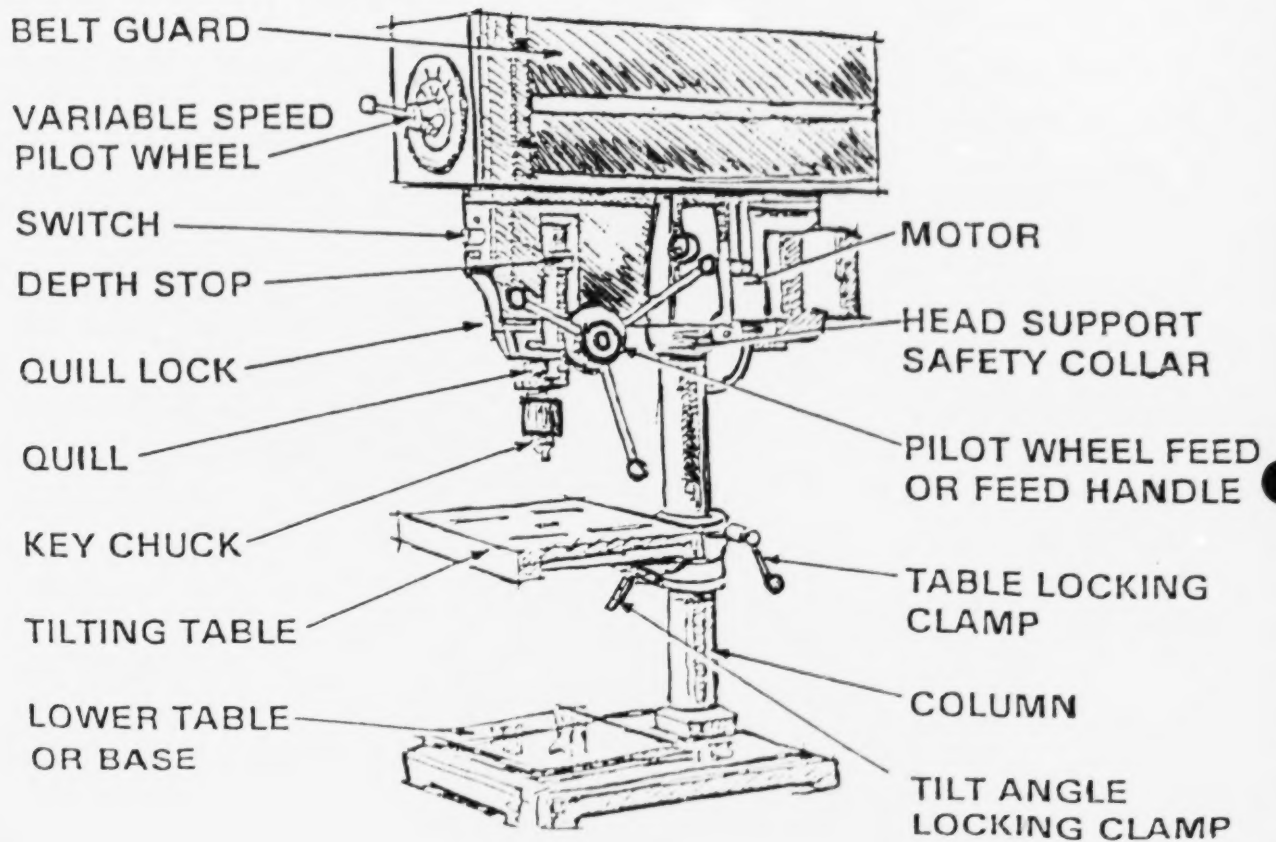
GENERAL SAFETY PROCEDURES

- | | |
|--|-----------|
| 1. Centre punch work before drilling. | 1. _____ |
| 2. Wear goggles. | 2. _____ |
| 3. Use sharp drills. | 3. _____ |
| 4. Centre drill over hole in table or use a piece of wood under stock being drilled. | 4. _____ |
| 5. Raise the work on table to within proper working distance. | 5. _____ |
| 6. Ensure that large diameter tools are used at low speeds. | 6. _____ |
| 7. Ensure that small diameter tools are used at medium or higher speeds. | 7. _____ |
| 8. Remove burrs with a stick or file. | 8. _____ |
| 9. Remove chips from table with a brush. | 9. _____ |
| 10. Use proper lubricant when necessary. | 10. _____ |
| 11. Do not reach behind moving parts of machine. | 11. _____ |
| 12. Tilt table if needed. | 12. _____ |
| 13. Wipe oil from table and floor. | 13. _____ |
| 14. Replace cutters in proper place after using. | 14. _____ |

I have demonstrated or completed all of the above checked items to the satisfaction of the teacher or supervisor.

Student's Signature

Teacher's/Supervisor's Signature



THEME: Techniques with Technology
LEARNING ACTIVITY: Safety: The Tools of the Trade
GRADE (suggested): 8
TIME (suggested): 20-25 hours (each grade)

LEARNING OBJECTIVES:

The student will:	
Concepts:	
- understand meaning of safety and safe-use practices - recognize safe-use practices when using tools, equipment and supplies	
Skills:	
- demonstrate personal safety practices - demonstrate the safe-use practices when handling both hand and power tools	
Attitudes:	
- appreciate the importance of safety and safe-use practices - value personal safety and the safety of others	

RESOURCES:

Student Resources

General Industrial Education, Glencoe Publishing Company, Bennett McKnight Division, 1988.

Correlation of Learning Activity with Student Resource

Concepts, Skills and Attitudes		General Industrial Education
Safety	Tool Awareness	
p. 2 pp. 2-4 p. 2 pp. 2-4 pp. 2-3 p. 2	pp. 2-12 pp. 18-40; 58 pp. 5-30; 39; 49; 58; 59; 66; 67; 69; 81 pp. 58; 62-65 pp. 7; 8; 37; 61; 71; 85; 91; 94; 97; 104 pp. 8-15	Drafting Woodworking Metalworking Electricity Graphic Arts Transportation

Teacher Resources

A variety of brochures, posters, booklets and other publications are available from the following agencies:

Alberta Agriculture
Alberta Labour Occupational Health and Safety
Alberta Safety Council
Canadian Safety Council

TEACHER BACKGROUND INFORMATION

This learning activity should be the first learning activity taught in the theme "Techniques with Technology". The concepts, skills and attitudes that students develop through this learning activity will be applied and reinforced in subsequent activities.

ALL PROCEDURES AND PRACTICES OUTLINED IN THIS LEARNING ACTIVITY SHOULD BE TAUGHT BY TEACHERS, TRADESPERSONS OR OTHER QUALIFIED PERSONNEL IN THE FIELD.

Many of the concepts, skills and attitudes developed through this learning activity may be transferred and integrated into the thematic learning activities contained in the other two courses that comprise the I.O.P. Practical Arts, Grade 8 and 9 curriculum: Business Education and Personal and Public Services.

SAFETY PRACTICES

Safety is everyone's business. In the Technical/Occupational component of I.O.P. Practical Arts, safety relates to the proper use of equipment, tools and supplies that may be used in any one or all of the learning activities contained in the *Teacher Resource Manual* and in any additional learning activities developed and used by the teacher.

The following statements of responsibility are applicable to all learning activities used by the teacher in the Technical/Occupational course. Safety practices specific to each learning activity are included in, and should be taught as an integral part of, each learning activity.

1. GENERAL RESPONSIBILITY

a. Safety Awareness

The teacher should ensure that all students acquire and practise habits of caution for their own protection and that of their classmates. The aim should be to cultivate careful, thoughtful, and deliberate habits of work as well as a "safety conscious" attitude.

b. Lab Safety

The teacher should institute a well-planned safety program and make that program effective by continued instruction and increasing vigilance. A record should be kept of each safety lesson presented.

c. Maintenance

The teacher should ensure that tools and machines are maintained in a condition consistent with good safety practices.

d. Injury

The teacher should maintain a record of all injuries suffered by students. Students should be encouraged to report even minor mishaps so that the details can be properly entered.

e. First Aid

The teacher should ensure that a standard first aid kit is available in the lab with adequate supplies to treat any minor accident.

f. Hazardous Chemicals

The teacher should ensure that hazardous chemicals are not used or stored without due precautions being taken to safeguard their storage and use.

2. MACHINE OPERATIONS

a. Safe-Use Practices

Provincial safety regulations calling for the use of face or eye shields, machine guards, and other protective devices should be strictly enforced.

b. Student Safety

Before being permitted to operate a machine, tool or other hazardous equipment in a shop, all students should be instructed in their operation and use and be warned of the hazards.

3. MOTOR VEHICLE OPERATIONS

a. Drivers

Only students with an appropriate driver's license should be allowed to drive vehicles in and out of the shops. It is not recommended that students take vehicles out on test drives without the owner or teacher being present.

4. FIRE SAFETY

a. Fire Hazards

Rubbish should not be allowed to accumulate in the lab. Oils, paints, stains, varnishes, paint removals, oily wiping rags, etc., must be kept in special containers.

b. Fire Extinguishers

Fire extinguishers should be easily accessible in the lab and the teacher should ensure that students are familiar with their location and operation.

c. Fire alarms

The teacher should ensure that when the fire signal sounds, students follow the regular school rules, and, if possible, turn off the power and gas. In an emergency, personal safety should have first consideration.

STUDENT ACTIVITY

1. Encourage students to develop an awareness of safety related issues by having them utilize Resource 1: "Technical/Occupational General Safety Checklist" to analyze safety conditions in their school labs.

OCCUPATIONAL ACCIDENTS

An occupational accident is an unplanned, unexpected event which interferes with the production process.

Accidents may be caused by an unsafe

Act: An injury may result when one or more individuals fail to follow accepted, normal or correct procedures or practices.

Condition: A hazardous physical condition which, if left uncorrected, may lead to injury.

Each student should receive instruction on correct handling procedures for each tool, machine or piece of equipment in the lab. Students should demonstrate safe handling practices before being permitted to use the item to produce a product.

TASK SAFETY ANALYSIS

A task safety analysis should be performed for each task a student is expected to perform. The following procedure may guide the analysis:

1. Record the job steps in their normal order of occurrence. Describe what is to be done. (Usually three or four words are sufficient to describe each basic job step.)

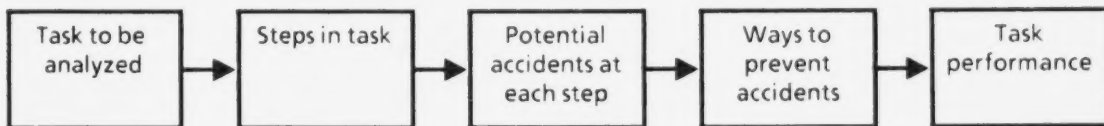
For example, the job of "replacing a fluorescent tube in a 4m ceiling" may break down as follows:

- get a step ladder
- climb ladder
- remove cover
- replace tube
- replace cover
- descend ladder
- remove and store ladder.

2. For each step, ask the question, "What accidents could happen to the person at this step of the task?" Could he or she:
 - be struck by or contacted by anything?
 - strike against or come in contact with anything?
 - be caught in, on, or between anything?
 - fall?
 - be exposed to fumes, radiation, etc ?

3. For each step, ask and answer the question, "What safety precaution should a person performing the task take to avoid an accident at each step?"
e.g., Get a step ladder Precaution: Look around, see if it is safe to lift and move ladder.
4. Prior to commencing the task, complete Resource 2: "Task Safety Analysis Chart".

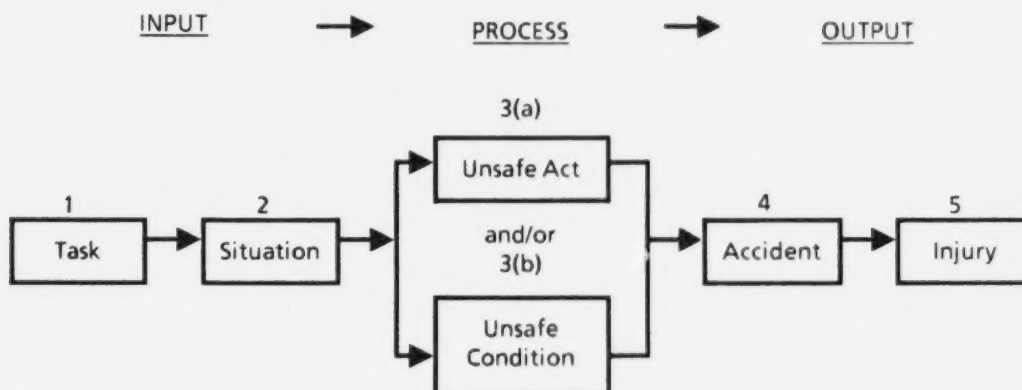
The task safety analysis process may be shown as follows:



Completion of a Task Safety Analysis chart for each task (handling a tool, operating a machine, cutting, sawing, planing, mixing, etc.) enables the teacher to maintain a detailed record of students' learnings and their demonstrated ability to handle specific tasks safely.

THE SEQUENCE OF AN ACCIDENT

The sequence of an accident may be shown as follows:



1. The task may be simple or complex; e.g., cutting a loaf of bread, removing a wheel from a bicycle, changing the oil in an engine.
2. The situation refers to conditions at the time of the accident; e.g., faulty equipment, illness, forgetfulness. While the situation may be beyond anyone's control, students should:
 - expect the unexpected
 - take more than adequate safety precautions
 - ask the teacher or supervisor what to do, what to use, how to do, or how to use any tool, material or piece of equipment when in doubt.

STUDENT ACTIVITIES

1.
 - a. Brainstorm examples of unsafe acts and unsafe conditions in the occupational areas of interest to students.
 - b. Have students further analyze the results of the brainstorming activity by completing Resource 3: "Unsafe Acts and Conditions".
 - c. Have students identify potentially hazardous occupational clusters, occupations and tasks and complete Resource 4: "Hazardous Areas".
2. Demonstrate a Task Safety Analysis, have students perform similar analyses and discuss the safety procedures followed; e.g.:
 - starting a car
 - starting a lawn mower
 - replacing a light bulb in a room with a 4m ceiling
 - drilling a pole in a 10cm x 12.5cm piece of wood using a drill press.
3. Have students recall and report on an accident in which they were involved. Have them identify and map the sequence of events that led to the accident and discuss how the accident might have been prevented.

4. Prior to performing a task or handling tools and equipment, have students read the appropriate safety section in the textbook, *General Industrial Education*:
 - Drafting, p. 2
 - Woodworking, pp. 2-4
 - Metalworking, p. 2
 - Electricity, pp. 2-4
 - Graphic Arts, pp. 2-4
 - Transportation, p. 2
5. Have students identify the safety and accident prevention procedures that must be followed in the lab and in the school.

Community Partnerships

6. Invite representatives from government agencies (e.g., Occupational Health and Safety) and the workplace (e.g., petroleum company safety supervisor) to discuss the importance of occupational health and safety practices.
7. Organize a field trip to a local industry (pulp mill, mine, construction site, etc.) and have students research, observe, and record:
 - good and bad safety practices
 - what is done to encourage safety
 - the safety record of the present and previous years
 - what safety incentives are in place.

OPERATIONAL SAFETY

Operational safety refers to the practices that should be followed by students in order to protect themselves and others. The five areas of operational safety addressed in this learning activity are:

- Eye and Face Protection
- Respiratory Protection
- Hearing Protection
- Skin Protection
- Safe Use of Tools.

EYE AND FACE PROTECTION

Eye protection in the lab is as important as it is in the workplace. Most on-the-job eye accidents could be prevented by wearing proper protective eyewear such as industrial safety glasses or goggles.

Approved industrial safety frame eyewear is constructed from tough slow-burning plastic that can withstand being dropped (high impact) and has hinges or other supports that are much stronger than regular streetwear frames.

Safety eyewear should be checked regularly for damage. Scratches can lower the impact resistance of the eyewear.

Protective eyewear or face shields should be worn when using:

- portable air- or electric-powered tools
- wood lathes
- table saws
- jointers
- other stationary equipment.

GUIDE TO EYE AND FACE PROTECTION DEVICES

The following eye and face protection devices are suggested:

TYPES OF EYE AND FACE PROTECTION DEVICES

1. SPECTACLES – Clear Lens
2. SPECTACLES – Filter Lens
3. SPECTACLES – Clear Lens Side Shields
4. VISITOR'S SPECS. AND CLIP-ONS
5. FLEXIBLE FRAME GOGGLES
6. CUP AND COVER GOGGLES (Clear Lens)
7. FACE SHIELDS
8. WELDING GOGGLES
9. WELDING HELMETS

RECOMMENDED TYPES OF EYE AND FACE PROTECTION DEVICES

<u>Task</u>	<u>Type of Eye/Face Protection Devices Which Should be Utilized</u>				
Acids and Caustics	6	7	8		
Babbling	3	6	7	8	10
Buffing	3	6	8		
Chemicals	6	7	8		
Chipping	3	6	7		
Compressed Air	7				
Dusts	3	6	7		
Furnace Operations	2	4	8	9	
Glare (Harmless)	2	4	5	6	8
Glare – Harmful (Infra-red and Ultraviolet)	2	4	9	10	
Grinding	3	6	7	8	
Hand and Power Tools	1	3	6	7	8
Machine Shop Operations	1	3	6	7	8
Molten Metals	2	4	8	9	
Plant Visitors	5	6			
Riveting	3	6	7		
Steam Boiler Operations	2	4	6	7	9
Welding, Cutting and Burning (Acetylene)	9				
Welding (Electric Arc)	10				
Welding (Spot and Butt)	3	6	8		
Welding (Helpers or Adjacent to)	2	4			
Woodwork	1	3	6	7	8

STUDENT ACTIVITIES

1. Use Resource 5: "Keep Your Eyes on the Job" as a transparency master or photocopy master to form the basis of classroom discussion on eye safety.
2. Have students explore the activity areas in the lab, identify areas in which eye and face protectors should be worn and give reasons why protectors should be worn.
3. a. Brainstorm and record the responses to the following questions:

"Which occupations require workers to use eye and face protection?"

"When required to wear eye and face protectors, what tasks might workers be performing in the occupations identified?"

"What type of eye and/or face protection might a worker wear for each task performed?"

b. Have students complete Resource 6: "Eye/Face Protection".

Community Partnerships

4. Invite a local optician, ophthalmologist, nurse or other knowledgeable person to discuss the importance of eye and face protection.

RESPIRATORY PROTECTION

Respiratory protection is concerned with safeguarding a worker's ability to breathe air that is relatively clean and free from harmful substances (asbestos, gases, dust, etc.).

In most workplaces and in the school lab, ventilation systems are installed to remove potentially harmful products from the work area. When performing particularly dusty or hazardous tasks, a worker may need to wear a nose and mouth mask or a portable respirator.

Respiratory protectors should be used when working with paints, resins, woods, welding tools, equipment and supplies.

STUDENT ACTIVITIES

1. Have students explore the activity areas in the lab and:
 - a. identify areas in which respiratory protectors might be needed
 - b. discuss the reasons why respiratory protection should be worn in these areas.

Community Partnerships

2. Invite an Occupational Health and Safety representative, the school nurse, or an industrial nurse to discuss respiratory dangers and protective devices used in various occupations.
3. Arrange field trips to a variety of trade areas and have students identify and record how, when, why and what respiratory protection is used.

HEARING PROTECTION

Noise can be harmful to a person's health. Loud noise levels may cause a variety of discomforts, illnesses, or damage to the ear drum.

Noise levels are measured in DECIBEL UNITS (dB). When noise levels in a work area go above 90dB there is a risk to workers in the area.

The following chart shows approximate sound levels (dB) and typical sources of noise.

Approximate Sound Level (dB)		Source
Danger Range	150	Jet engine test cell
	130	Riveting steel tans, Pneumatic rock drills, Presses (close range)
	125	Pneumatic riveters, Chippers
	120	Threshold of Pain – Turbine generators, Sand blasters, Punch presses
Risk Range	110	Drop hammers, Drills, Shovels, Heavy trucks
	105	Riveting machines, Pin routers, Wire braiders, Standing machines, Circular saws
	100	Can manufacturing plants, Automatic screw machines, Ram turret lathes, Portable grinders
	90	Portable sanders, Engine lathes, Pneumatic diesel compressors, Milling machines, Weaving mills, Welding equipment
Safe Range	80	Tabulating machines, Electric typewriters
	75	Stenographic rooms
	70	Electronics assembly plants
	60	Normal conversation

NOISE RELATED HEALTH HAZARDS

- Deafness. By the time a person realizes that he or she is losing hearing, it's too late to recover it! Hearing damage occurs gradually.
- High blood pressure and heart disease. Noise puts the body "on the alert!" This strain makes blood pressure go up and the heart beat faster.
- Aggravation of illness. If already sick, noise can make a person even sicker.
- Stress. Noise won't let a person relax, and the body react to stress. The effects can continue even after the noise has stopped!
- Conflicts at home. It's hard to relax after a noisy day on the job; family life may suffer.
- Insomnia. Without a good night's sleep, a person can't be at his or her best.

- Social isolation. Constantly having to "speak up" to be heard will eventually cause a person to withdraw from conversations and stop communicating with those around.
- Extreme emotions. Noise makes a person feel annoyed and irritable, and consequently may get angry more easily and at smaller things.
- Poor working quality. Work may get done, but it may not be accurate. Continuous loud noise can cause loss of concentration and result in mistakes being made.
- Accidents on the job. Permanent disability or loss of life can result if a warning signal is not heard or fellow workers can't hear shouts for help!

STUDENT ACTIVITIES

1. Borrow a noise meter and have students test and read the noise level in the lab when specific power tools and equipment are used individually, and when they are used together.
2. Have students calculate the decibel level that would result when multiple power tools or equipment are used simultaneously. (Consultation with the I.O.P. mathematics teacher will help integrate the concepts of sound levels and multiplication.)
3. Have students identify types of hearing protectors commonly available and practise wearing them correctly.

Community Partnerships

4. Invite an audiologist, the school nurse, or a representative from Alberta Occupational Health and Safety to discuss noise pollution and the use of hearing protection devices in the workplace.
5. Have students visit various work sites and identify the types of occupations and occupational tasks that may require a worker to wear a hearing protection device.

SKIN PROTECTION

A variety of potentially harmful chemicals are used in business and industry. Some of these chemicals are known to be hazardous if touched or spilled; other chemicals may cause allergic reactions to occur. To protect workers' skin, aprons, gloves and protective creams are often used.

Industrial pharmacists have developed a wide variety of industrial skin care devices and cosmetic products. These include:

- heat resistant gloves
- metal gloves
- fire and heat proof aprons
- metal aprons
- barrier creams.

Students should be able to recognize the signs and symbols used for hazardous chemicals and poisonous products and be aware of occupational situations in which various skin care protection devices and cosmetics are used.

STUDENT ACTIVITIES

1. (a) Brainstorm: "Which occupations and occupational tasks may require workers to wear skin protectors?"

(b) Have students research and record the types of skin protection used in different occupations

Community Partnerships

2. Invite knowledgeable community partners to demonstrate and discuss the various types and uses of skin protection devices and products.
3. Have students visit industrial suppliers and identify the physical and chemical skin protectors available.

HANDLING HAND AND POWER TOOLS

Specific hand tools, power tools and equipment safe-use practices should be taught in context. That is, the use of a tool or piece of equipment should be integrated with the teaching of a production process; e.g., when the teacher demonstrates making a hole in a piece of metal using a drill press, this is the best or most effective time to teach safety relative to wearing apparel, handling the metal and the use of the drill press.

Hand and power tools can be hazardous. Even the most familiar tools; e.g., hammers, screwdrivers, power drills, can cause serious injuries if handled incorrectly. Guidelines for the selection and safe use of hand and power tools include:

- **MAKE A WISE CHOICE**
There's a tool designed for each job – pick the right one. Remember that makeshift tools can cause accidents.
- **TAKE TIME TO INSPECT**
Before and after using a tool, always check heads, tips, claws, edges and blades for flaws. Defective tools can cause accidents.
- **PUT TO PROPER USE**
Be sure to learn the correct way to use each tool – then practise that method at all times. Improper handling of tools can cause accidents.
- **CONSIDER CARE AND REPAIR**
Keep tools in clean, sharp, perfect condition. They will do a better job and be safer to use. If a tool is damaged, repair or replace it. Bent, dull or rusty tools can cause accidents.
- **KEEP IDLE TOOLS UNDER WRAPS**
Carry tools in pouches, belts, holders or boxes designed for that purpose. Store tools in a dry, secure box or cabinet. Unprotected and unsecured tools can cause accidents.
- **DRESS FOR THE JOB**
Avoid loose clothing that can be snagged by tools, nails or working materials. Wear protective gloves, caps, shoes and safety goggles or glasses. Flying fragments can cause accidents.

TOOL DEFECTS AND RIGHT AND WRONG USE OF HAND TOOLS*

AXES

- | | |
|----------------|--|
| Common Defects | ● Loose or split handles; poor balance, dull, nicked, or over-tempered blades or points. |
|----------------|--|

- Wrong Tool for Job
 - Using as mauls or wedges.
 - Using as pry bar.
 - Using as hammer.
- Right Tool, Wrong Use
 - Using tool with defective handle.
 - Not keeping body well out of line with swing of the tool to avoid glancing blow.
 - Attempting too deep a cut.

HANSAWS

- Common Defects
 - Improper or inadequate set, dull or improperly ground teeth, sprung blades, loose or split handles.
- Wrong Tool for Job
 - Twisting off strips of waste with blade instead of using hand or mallet.
- Right Tool, Wrong Use
 - Not hanging saw up when it is not in use.
 - Sawing into nails with a woodcutting saw.
 - Allowing end of saw to strike floor.
 - Cutting insecurely fastened work.
 - Starting the cut improperly, causing the saw to jump.

SCREWDRIVERS

- Common Defects
 - Split or battered handles, chipped or bent blade, bent shank.
- Wrong Tool for Job
 - Using as pry or pinch bar, chisel, punch or drift.
 - Using screwdriver with uninsulated handle around electrical wiring.
- Right Tool, Wrong Use
 - Using screwdriver with blade tipped in screw head.
 - Using wrong size screwdriver.
 - Using pliers or wrench on shank of screwdriver.
 - Hammering on end of a screwdriver.

CHISELS AND PUNCHES

- Common Defects
 - Mushroomed heads, chipped points, over-tempered heads or points, shank too short for safe holding.
- Wrong Tool for Job
 - Using as pry bar.
 - Using instead of a wrench for loosening nut.
- Right Tool, Wrong Use
 - Using a chisel too short for hand safety.
 - Trying to take too deep a cut.
 - Holding with too tight a grip.
 - Chipping toward oneself or toward other workers.
 - Chipping without wearing goggles.
 - Using a pin punch to start a pin.

DRILL BITS, ETC.

- Common Defects
 - Worn or battered heads; over-tempered, dull or worn cutting edges.

Wrong Tool for Job

- Using drill as reamer.
- Using drill sharpened for drilling steel on brass or copper without removing the tip.

Right Tool, Wrong Use

- Tipping drill sideways to enlarge hole instead of using larger drill or reamer.
- Placing work-supporting blocks too far from drill.
- Allowing bit to work loose in chuck.
- Not clamping work securely.

FILES

Common Defects

- Handles missing, chipped ends, worn or filled teeth.

Wrong Tool for Job

- Using as pry bar.
- Using as drift pin to remove drill bit from chuck.
- Using as hammer.

Right Tool, Wrong Use

- Using file without handle.
- Striking file against an object to clean it.

HAMMERS

Common Defects

- Insecure, split, or rough handles, chipped heads, sprung or broken claws (carpenter hammer), poor balance.

Wrong Tool for Job

- Using as pry bar.
- Using machinist's hammer for driving nails.
- Using carpenter's hammer for hammering metal.
- Using hammer to loosen nut.

Right Tool, Wrong Use

- Gripping handle too close to head.
- Striking hardened steel surface.
- Using hammer with a loose head.
- Using the end of a hammer handle for bumping purposes.
- Striking surface too hard.

HOOKS AND TONGS

Common Defects

- Dull points, improper shape (finger-pinching hazard).

Wrong Tool for Job

- Using hooks or tongs instead of a sling.
- Using point of hook or tong as pry.

Right Tool, Wrong Use

- Tongs not securely embedded in material to be lifted.
- Hammering tong to get better grip.
- Swinging tong carelessly to embed the point.

SHOVELS

Common Defects

- Split, rough or loose handles; bent or jagged blade.

- Wrong Tool for Job ● Using as pry bar or hammer.
- Right Tool, Wrong Use ● Using shovel too close to other workers.

WRENCHES

- Common Defects ● Worn or sprung jaws, rough or sprung handles, worn or broken mechanism.
- Wrong tool for Job ● Using as hammer or pry.
 ● Using the wrong type of wrench.
- Right Tool, Wrong Use ● Pushing instead of pulling on the wrench.
 ● Using a wrench which fits nut poorly.
 ● Turning adjustable wrench so pulling force is applied to adjustable jaw.
 ● Using pipe to increase leverage.

STUDENT ACTIVITIES

1. Have students identify basic tools used in the lab and locate their proper storage areas
2. Demonstrate correct handling procedures of commonly used tools and have students identify areas where simple defects may affect the safe use of each tool.
3. Have each student select one or more tools, research its origin and development, and then make a presentation/demonstration to the class. (The teacher should ensure that each student is competent to demonstrate the use of the tool selected)
4. Have students select projects from among the other learning activities in this theme that will enable them to develop awareness of, and basic competency in using, a variety of hand and power tools.

Community Partnerships

5. Invite tradespersons and craftspersons to demonstrate and discuss their skills in using hand and basic power tools (carpenter, electrician, plumber, etc.).

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TECHNICAL/OCCUPATIONAL GENERAL SAFETY CHECKLIST

Resource 1

S - Satisfactory; U - Unsatisfactory; NA - Not Applicable

Instructional Program

1. Occupational safety is taught as an integral part of each teaching unit.	S	U	NA
2. Documentation of lessons is recorded in a plan or day book.	S	U	NA
3. Students are evaluated for safety knowledge and ability.	S	U	NA
4. A proper record is kept of safety tests which are given, preferably showing the signature of the student on tests given in this area.	S	U	NA
5. Safety rules are posted, particularly at each danger station.	S	U	NA
6. Use of safety posters is evident.	S	U	NA
7. Motion and/or slide films on safety are used in the instruction.	S	U	NA
8. Proper supervision is maintained when students are using machines and dangerous tools.	S	U	NA
9. All machine guards are used.	S	U	NA
10. Machines are shut off while unattended.	S	U	NA
11. Students cooperate with each other and the teacher in obeying and enforcing general and specific safety rules.	S	U	NA
12. Emergency procedures are taught, and copies of the procedure posted in a visible place.	S	U	NA

General Lab Operation

13. Floors are kept clear of waste materials.	S	U	NA
14. Illumination is safe, sufficient and well placed.	S	U	NA
15. Ventilation is adequate and proper for activity.	S	U	NA
16. Air in the lab is free from excessive dust, smoke, etc.	S	U	NA
17. Adequate and proper storage space is provided for tools and materials.	S	U	NA
18. Benches, tool racks and storage are maintained in good order.	S	U	NA

Accident Records and First Aid

19. An adequately stocked first aid cabinet is provided and kept in a visible place.	S	U	NA
20. There is a written statement outlining the proper procedure when and if a student is injured.	S	U	NA
21. The school has individuals qualified to administer first aid.	S	U	NA
22. An eye wash station is provided in a visible place.	S	U	NA

Maintenance

23. Effective clean-up routine is maintained by students.	S	U	NA
24. Waste containers are disposed of daily.	S	U	NA
25. Supply room is kept orderly.	S	U	NA
26. Scrap boxes are provided and emptied regularly.	S	U	NA
27. Floors are kept free of oil, water and foreign material.	S	U	NA

Tools and Equipment

28. Machines are maintained in safe working condition.	S	U	NA
29. Tools are kept sharp, clean and in safe working order.	S	U	NA
30. All gears, moving belts, etc., are protected by permanent guards.	S	U	NA
31. All guards are used where possible.	S	U	NA
32. Danger zones are properly indicated and guarded.	S	U	NA
33. Goggles or protective shields are used correctly.	S	U	NA
34. Rings and other jewelry are removed before students are permitted to use tools or operate equipment.	S	U	NA
35. Proper wearing apparel is worn and worn properly.	S	U	NA
36. Long hair is tied back off the face.	S	U	NA
37. Machines and benches are arranged so that workers are protected from hazards.	S	U	NA
38. Non-skid areas are provided around machines.	S	U	NA

Fire Protection

39. Machines are shut off while unattended.	S	U	NA
40. Exits are kept clear.	S	U	NA
41. Fire extinguishers are ready for use.	S	U	NA
42. Gasoline is kept in safety cans.	S	U	NA
43. Flammable liquid is kept in closed metal containers.	S	U	NA
44. Flammable liquid is kept in approved storage cabinets.	S	U	NA
45. Proper ventilation is available.	S	U	NA
46. Oil rags are stored in a spring lid metal container.			

Electrical Safety

	S	U	NA
47. All electric tools are grounded.	S	U	NA
48. All machines are grounded.	S	U	NA
49. High voltage warning signs are posted.	S	U	NA
50. A lock out device or master switch is easily accessible.	S	U	NA
51. Electrical controls are easily accessible.	S	U	NA
52. Wires, plugs, and sockets are maintained in good condition.			

Gas Safety

	S	U	NA
53. All gas flow to appliances is regulated with check valves.	S	U	NA
54. There is no gas leak or the odour of gas detectable in any area of the lab.	S	U	NA

Task: _____

Date: _____

Step Performed Satisfactorily

[illegible]

Date _____

UNSAFE ACTS AND CONDITIONS

Resource 3

UNSAFE ACTS	UNSAFE CONDITIONS
1. Operating equipment without permission • • •	1. Improper guards on machines • • •
2. Operating at unsafe speed • • •	2. Defective tools and conditions • • •
3. Using unsafe tools and equipment • • •	3. Unsafe arrangement of work areas • • •
4. Unsafe lifting, mixing, handling • • •	4. Improper lighting • • •
5. Working on moving or dangerous equipment • • • •	5. Improper ventilation • • •
6. Fooling around • • •	6. Unguarded equipment and hazardous materials • • • •
7. Wearing improper clothing • • •	7. Failing to wear proper clothing • • •
8. _____ • • •	8. _____ • • •
9. _____ • • •	9. _____ • • •
10. _____ • • •	10. _____ • • •

HAZARDOUS AREAS		
OCCUPATIONAL CLUSTER	OCCUPATION	TASK
Agribusiness	• Farm Mechanic • • •	• Repairs a lawn mower • • •
Business and Office Operations	• Clerk • • •	• Uses a guillotine paper cutter • • •
Construction and Fabrication	• Roofer • • •	• Shingles a roof • • •
Creative Arts	• Photographer • • •	• Develops film • • •
Natural Resources	• Miner • • •	• Operates heavy equipment • • •
Personal and Public Services	• Child care worker • • •	• Prepares formula • • •
Tourism and Hospitality	• Cook • • •	• Uses a food slicer • • •
Transportation	• Warehouse person • • •	• Operates a forklift • • •

KEEP YOUR EYES ON THE JOB

One flying chip, a bit of dust, a small chemical splash or a bit of radiant energy can damage the sight of an eye and this happens about a 1000 times a day in industry. Why invite this danger? It can be avoided if proper eye protection is always worn on the job.

WEAR

At all times on the job, wear the industrial quality safety goggles or spectacles required. They won't protect you if they are in your pocket or in your locker.

The right way to wear safety glasses is properly positioned in front of your eyes. If eyewear is perched on the end of your nose or on the top of your head, your eye protection has disappeared.

The fit must be right to be effective. The frames should feel comfortable and not rub, chafe or be irritating in any way. All lenses, especially bifocal and corrective, must be positioned precisely to give correct vision. Loose fitting glasses are distracting and become a safety hazard.

It takes time to become accustomed to wearing safety goggles or glasses. If you are new to wearing safety eyewear, you may see a glare. This is because you are looking at the lenses, not through them. You may also think that objects are magnified. These effects will soon disappear.

CARE

Your equipment protects you best if it's in perfect shape.

Inspection should be done routinely. Pitting, etching and scratching can weaken the lenses and reduce the impact resistance and visibility. Cracked, worn or eroded parts may weaken the frame. Damaged eyewear should be discarded.

Repair and adjustments should be done by a vision specialist.

CLEANSING

Cleansing with soap and water or an appropriate cleaning agent and tissue should be done on a regular basis. Use the special cleaning materials supplied for plastic lenses. If you wear contact lenses, carry proper solutions with you for cleaning them.

Disinfection of all equipment should be done periodically.

STORAGE

When eyewear not in use, should be stored in a clean, dustproof case. Never rest your glasses or goggles on the lenses; both glass and plastic can be scratched by minute dust particles.

EYE/FACE PROTECTION

Resource 6

OCCUPATION	TASK	EYE/FACE PROTECTION
e.g.; Autobody Repairer • • • • • •	spray painting	goggles/face mask

THEME: Techniques with Technology
LEARNING ACTIVITY: Wheeling and Dealing
GRADE (suggested): 8
TIME (suggested): 15-20 hours

LEARNING OBJECTIVES:

The student will:

Concepts:

- understand the meaning of preventative maintenance
- recognize the parts of a bicycle that should be regularly maintained

Skills:

- demonstrate basic preventative maintenance practices on bicycles
- begin to develop skills in basic bicycle repair

Attitudes:

- appreciate the benefits of using preventative maintenance practices
- value preventative maintenance as a safety practice

RESOURCES:

Student Resources

General Industrial Education, Glencoe Publishing Company, Bennett and McKnight Division, 1988.

Correlation of Learning Activity with Student Resource

Concepts, Skills and Attitudes	<i>General Industrial Education</i>
Energy	pp. 4-6

Teacher Resources

Books, magazines and journals related to cycling, bicycle repair and maintenance.
Alberta Safety Council.
Canada Safety Council.

TEACHER BACKGROUND INFORMATION

This learning activity will introduce students to the basic principles of bicycle care and maintenance and assist them to develop concepts, skills and attitudes appropriate to preventative maintenance. Teachers are encouraged to extend and expand the concept of preventative maintenance to integrate related principles commonly taught in other courses, including science, health, physical education, etc.

The bicycle as a mechanical means of transportation may be used to introduce students to the basic principles of energy and energy transformation, and provide students with knowledge and skills that are transferable to other learning activities in which the concept of energy and energy transformation are considered; e.g.,

- "Give it the Gas: Building a Model Dragster"
- "Going in Circuits"
- "Joining Forces: Constructing an Extension Cord".

The basic maintenance procedures outlined in this learning activity may be supplemented and complemented with related maintenance procedures developed by teachers and/or found in recognized bicycle repair books and magazines.

Community Partnerships

To facilitate a sufficient and regular supply of bicycles for students to practise basic repair and maintenance, teachers may consider offering customer services to community members. The use of customer's bicycles provides students with increased appreciation of the need to work to acceptable standards including safety, time lines and appearance of the item being returned to its owner.

Customer service programs also increase students' awareness of the entrepreneurial potential available to persons with the knowledge and skill to repair and maintain bicycles and the attitude appropriate to relate well to customers and potential customers.

BICYCLE MAINTENANCE

Key Concept: Preventative Maintenance

Preventative maintenance involves an organized and planned set of procedures to ensure that a tool, piece of equipment, appliance or vehicle is always in good working order.

Preventative maintenance includes regular:

- cleaning
- checking of all movable parts
- checking of all non-movable parts
- lubricating.

Some of the basic preventative maintenance practices involve cleaning and inspecting the bicycle. These basic practices are outlined in Resource 1: "Basic Bicycle Care Checklist"; a more detailed maintenance checklist is shown in Resource 2: "Bicycle Care and Maintenance Detailed Checklist".

STUDENT ACTIVITIES

1. Discuss "What is meant by the term 'preventative maintenance'?"
2. Brainstorm:
"What other tools, equipment, appliances, vehicles should receive preventative maintenance?"
"Does the principle of preventative maintenance apply to human beings as well as to tools and machines? How? What should we do to practice personal preventative maintenance?"
3. Have students identify the various parts of the bicycle that could benefit from regular preventative maintenance attention.

4. Have students bring in their own bicycles and demonstrate to the rest of the class the way in which they maintain their bicycle.

Community Partnerships

5. Invite a bicycle mechanic from a local store to demonstrate and discuss how good preventative maintenance protects a bike and prolongs its life. Have students use Resource 1: "Basic Bicycle Care Checklist" to indicate the frequency of various preventative maintenance practices.
6. Invite a representative from a local safety organization to discuss the relationship of good preventative maintenance to bicycle safety.
7. Invite a representative from a local bicycle club to demonstrate and describe how he or she cares for a bike when on a long road race or trip.

TYPES OF BICYCLES

Being able to recognize the types of bicycles commonly used by male and female cyclists and child cyclists helps the bicycle mechanic select the correct tools for repair and maintenance jobs. The four most common types of bicycles include:

- sidewalk bicycles
- three-speed commuter bicycles
- ten-speed bicycles
- racing bicycles.

STUDENT ACTIVITIES

1. Have students research and obtain and/or draw pictures of each of the four types of bikes named (pictures may be pasted in the appropriate area of the lab) and describe in writing the characteristics, advantages and disadvantages of each type of bike (see Resource 3: "Types of Bicycles").
2. Have students bring their own bicycles to class and describe why they selected that type of bicycle.

Community Partnerships

3. Invite a local bicycle store operator to describe and discuss the merits, costs, and uses of different types of bicycles.
4. Invite a regular commuter cyclist and a racing cyclist to discuss the merits of different types of bicycles.

PARTS OF A BICYCLE

Bicycles vary in type, size, shape and colour. However, almost every bicycle has a set of similar parts as listed in Resource 4: "Basic Parts of a Ten-Speed Bicycle". A more detailed list of parts for an average ten-speed bike are listed in Resource 5: "Detailed Parts of a Ten-Speed Bicycle".

Basic Bicycle Repair

Basic repair and maintenance procedures for a ten-speed bicycle are outlined in Resources 6-11:

Resource 6: "Disassembling the Front Wheel"

Resource 7: "Disassembling the Headset"

Resource 8: "Disassembling a Crankset"

Resource 9: "Disassembling a Rear Wheel"

Resource 10: "Disassembling Bicycle Pedals"

Resource 11: "Handlebar Retaping".

This information should be supplemented and complemented with additional instructions available in bicycle repair manuals published by bicycle manufacturers.

It is important for students to learn that when repairing a bicycle:

- each part disassembled must be reassembled
- disassembled parts should be grouped together and placed in a safe place
- worn parts should be replaced
- areas requiring oiling should be oiled
- all parts of the bicycle should be cleaned.

A basic set of bicycle repair tools should be available for students' use. In addition to basic hand tools, bicycle repair tools include:

- allen wrenches
- cone wrenches
- cotterless crank puller
- cotterless crank wrench
- cotter pin remover
- free wheel remover
- fork clamp
- fork clamp and gauge
- fork straightener
- seat stay and chain stay straighteners
- spoke wrench
- tire irons
- tire pump.

Recognizing Problems

With experience a bicycle mechanic is able to recognize the areas of a bicycle in need of repair. The ability to identify an unsafe condition, to check and confirm the condition, and be able to correct the condition is called TROUBLE SHOOTING.

Resource 12: "A Trouble Shooting Chart" outlines some of the more common bicycle conditions.

BASIC BICYCLE CARE CHECKLIST

Resource 1

Activity	Daily	Weekly	Monthly	Yearly	Other
1. Wipe the bike with a damp cloth after each ride.					
2. Inspect the bike after each ride. Check for:					
• frayed cables					
• loose nuts or bolts					
• proper tire pressure					
• worn tires					
• brake working and alignment.					
3. Before spray washing, cover the mechanical areas with plastic.					
4. Wash the bike with a fine spray of warm water and a mild detergent.					
5. Use only a small amount of mild detergent when cleaning the bike.					
6. Use only a mild chemical degreaser if one is needed.					
7. Use a thick nylon bristle brush to clean wheels, pedals, chains.					
8. Use cotton-tipped swabs or pipe cleaners to reach areas not accessible by brush.					
9. Always rinse thoroughly after using detergent on a bike and dry with towels, cotton swabs, etc.					
10. Wash the painted portion of the bicycle frame, polish the chrome and alloy.					
11. Lubricate all grease points and areas.					

**BICYCLE CARE AND MAINTENANCE
DETAILED CHECKLIST**

Resource 2

ACTIVITY	Checked	Repaired	Replaced	Other
INSPECT CHAIN				
CHAIN (REMOVE, INSTALL)				
CHAIN (CLEAN)				
INSPECT PEDALS				
PEDALS (REMOVE, INSTALL)				
PEDALS				
ADJUST REAR DERAILLEUR				
ADJUST FRONT DERAILLEUR				
INSPECT FRONT HUB				
REMOVE FRONT WHEEL				
CHECK DROPOUT ALIGNMENT				
FRONT HUB				
TRUE FRONT WHEEL				
INSTALL FRONT WHEEL				
ADJUST FRONT BRAKE				
INSPECT REAR HUB				
REMOVE REAR WHEEL				
CHECK DROPOUT ALIGNMENT				
REMOVE FREEWHEEL				
FREEWHEEL (CLEAN, LUBRICATE)				
REAR HUB				
INSTALL FREEWHEEL				
TRUE REAR WHEEL				
ADJUST REAR BRAKE				
INSPECT CRANKSET				
CRANKSET				
INSPECT HEADSET				
HEADSET				
TIRE REPAIR				
REFLECTORS				
LIGHTS				
TEST BRAKES				

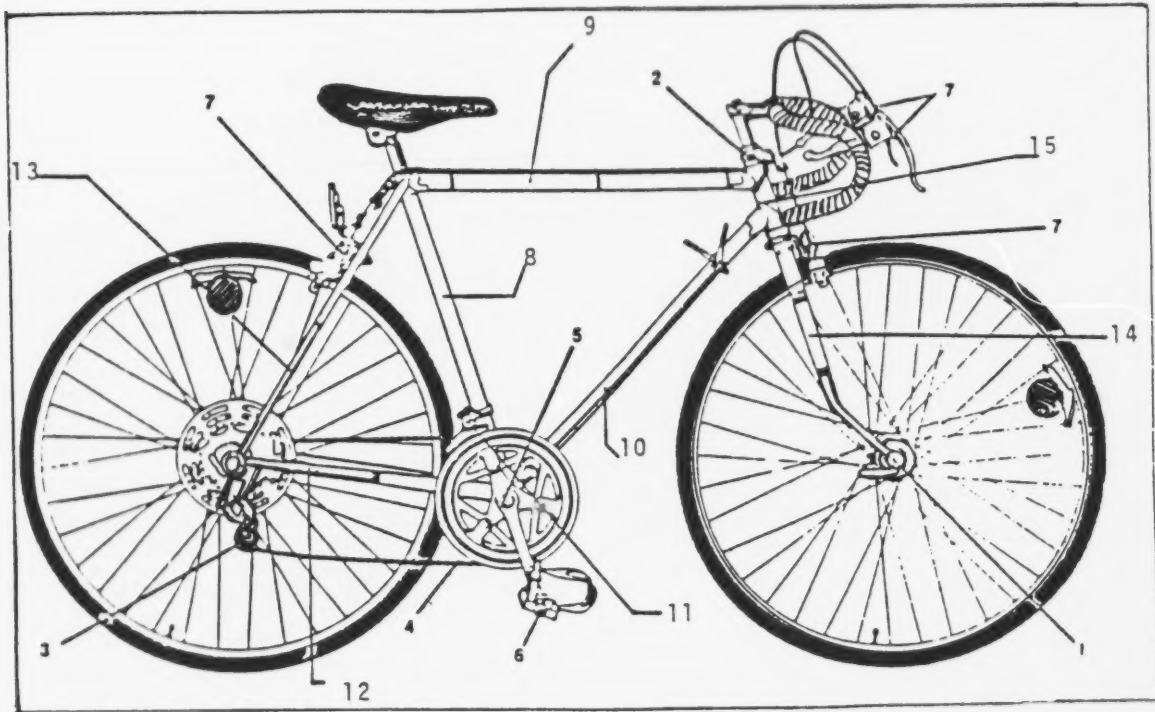
TYPES OF BICYCLES

Resource 3

TYPE OF BICYCLE	MAJOR MANUFACTURERS	APPROX. COST	ADVANTAGES	DISADVANTAGES
Sidewalk Bicycles				
Three-Speed Bicycles				
Ten-Speed Bicycles				
Racing Bicycles				

BASIC PARTS OF A TEN-SPEED BICYCLE

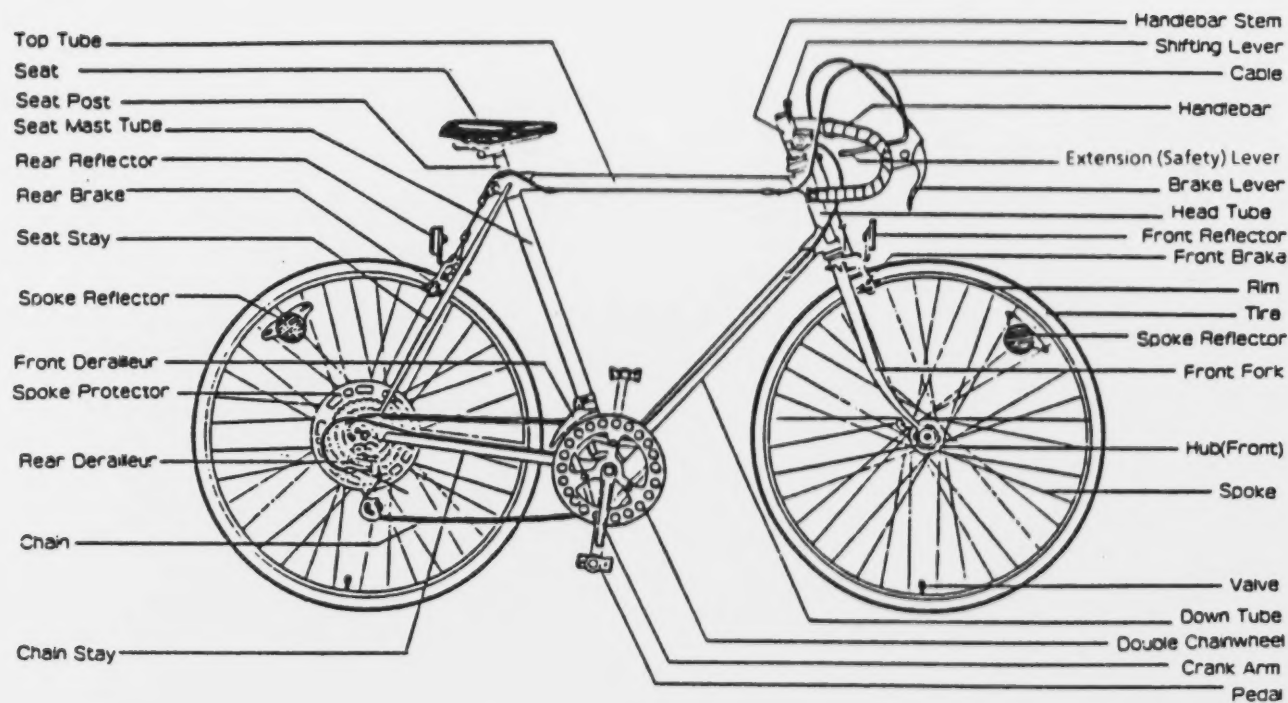
Resource 4



- | | |
|---------------------------|---------------------|
| 1 Front Hub | 9 Top Tube |
| 2 Head Set | 10 Down Tube |
| 3 Rear Derailleur | 11 Front Derailleur |
| 4 Chain | 12 Chain Stay |
| 5 Crank or Bottom Bracket | 13 Seat Stay |
| 6 Right Pedal | 14 Forks |
| 7 Brakes | 15 Head Tube |
| 8 Seat Tube | |

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PARTS OF A TEN-SPEED BICYCLE



DISASSEMBLING THE FRONT WHEEL

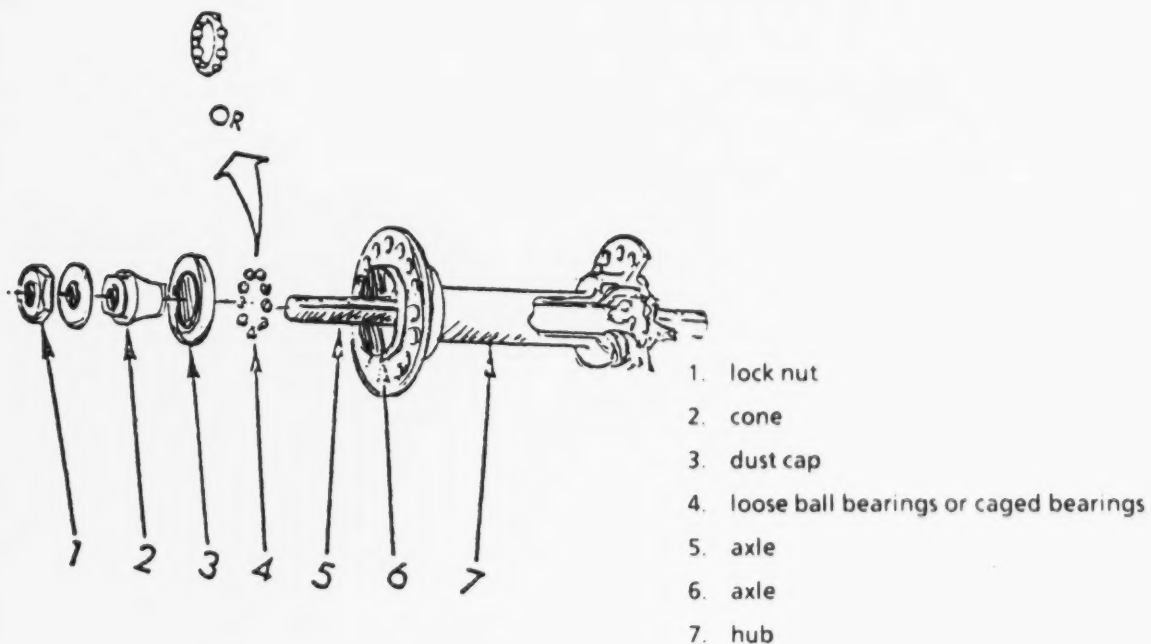
Resource 6

(Note: Most front wheels have a lock nut next to the cones.)

Procedure

1. Work from one side only using a cone wrench and an open ended wrench to remove these nuts.
2. Do not remove cone or lock nut from other side.
3. Wash all bearings in solvent and dry with clean rags.
4. Make sure there is an equal number of bearings on each side.
5. Replace axle and tighten the cone which you removed, only finger tight. Next lock the lock nut, while holding the cone with a cone wrench.
6. Check that the axle turns smoothly in the hub and does not move from side to side.

Parts of the Front Hub



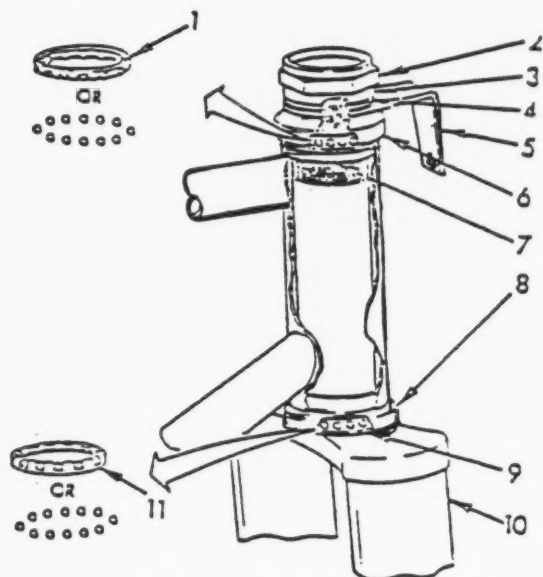
DISASSEMBLING THE HEADSET

Resource 7

(Note: When removing head set, FIRST remove handle bars by loosening the centre bolt (do not remove) and lightly tapping it down with a PLASTIC hammer.)

1. Do not remove fenders or brakes.
2. Watch closely when removing ball bearings – are they caged or loose (if loose and you drop some make sure you find them or replace them with new ones)?
3. Wash all bearings and parts in solvent, and dry with clean rags.
4. Reassemble head set and tighten cone finger tight. Use a wrench to tighten lock nut.
5. Ensure fork turns smoothly from side to side and does not move up and down.

Parts of a Headset

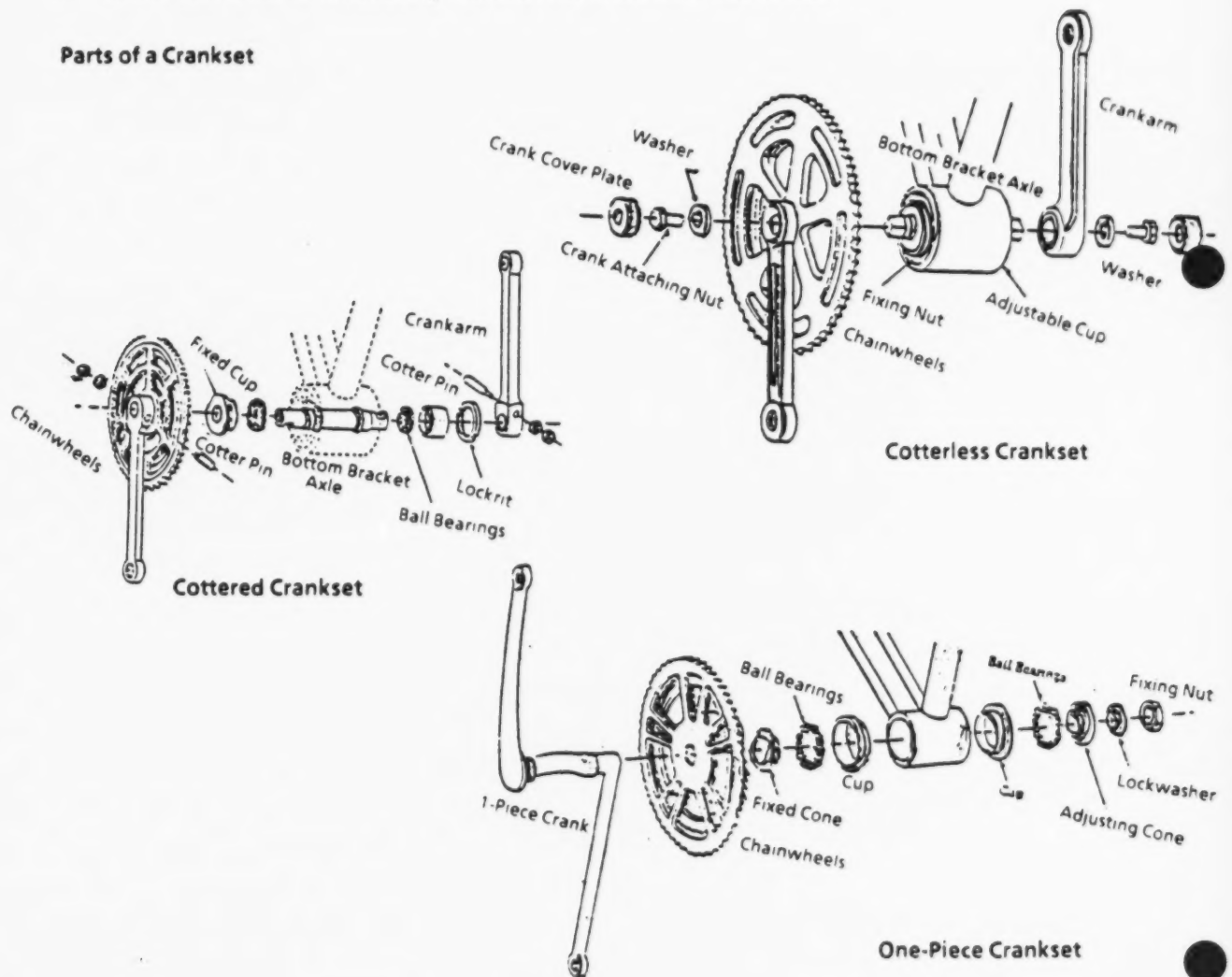


1. caged or loose ball bearings
2. headset lock nut
3. spacer
4. lock washer
5. cable hanger
6. adjusting cone
7. top cap or bearing race
8. bottom cup or bearing race
9. bottom cone
10. forks
11. cage or loose ball bearings

Procedure

1. Remove sprocket arm and left arm taking care not to damage cotter pins.
2. Remove only the left side of bottom bracket.
3. Remove crank and clean all parts with solvent.
4. Dry each part with a clean rag.
5. Tighten cones finger tight.
6. tighten lock nuts with proper tools.
7. Ensure that crank turns smoothly and does not move from side to side.

Parts of a Crankset



DISASSEMBLING A REAR WHEEL

Resource 9

(Note: When disassembling a rear wheel, remove lock nut and cone from the left side. Do not remove the right side.)

Procedure

1. Remove axle by pulling it out on the right side.
2. Ensure that once removed, the axle has the cone, spacer and lock nut still locked to the right side.
3. Next remove rear cluster using the proper cluster remover.
4. Clean all parts and bearings in solvent and dry with clean rags.
5. Ensure that when replacing bearings there is an equal number of bearings in each side.
6. Do not replace rear cluster or spoke protector until finished replacing and adjusting axle.
7. Oil rear cluster from the back before replacing, allowing oil to soak inside. Wipe any extra oil off with a rag.
8. Ensure that axle does not move from side to side and that it turns smoothly.

DISASSEMBLING BICYCLE PEDALS

Resource 10

(Note: When disassembling pedals note that they are marked L - for LEFT, R - RIGHT. Use the pedal wrench, not a cone wrench to remove pedals.)

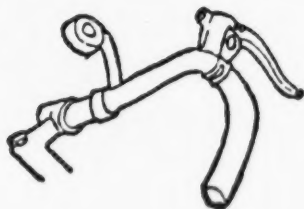
Procedure

1. Remove pedal from pedal arm.
2. Remove dust cap.
3. Remove lock nut and lock washer.
4. Remove cone and bearings, make sure that you do not lose any bearings if they are loose.
5. Clean all parts and bearings in solvent and dry with clean rag.
6. Replace bearings with new grease.
7. Lock cones in place with lock washer and lock nut.
8. Ensure that pedals turn smoothly and do not move from side to side.

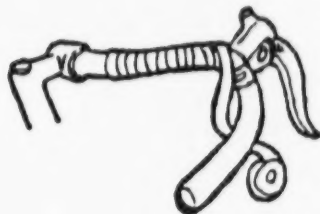
Retaping of handlebars provides the opportunity to improve the appearance of a bicycle and ensure that the cyclist has good control of the bicycle.

Procedure

1. Select appropriate coloured tape and start taping the right handlebar close to the handlebar stem.



2. Continue taping around brake until the right handlebar is completely covered with tape.



3. Select and insert appropriate end cap.



4. Repeat steps 1-4 on left handlebar.

End Caps



A



B



C

- A. snap in type (metal)
- B. push in type (plastic)
- C. screw in type (plastic)

TROUBLESHOOTING CHART

Resource 12

CONDITION	WHAT TO CHECK	HOW TO CORRECT
A Slipping results when pedaling commences	1. Is the cone w/ Dust Cap loose?	Adjust the cone w/ Dust Cap on the sprocket side to eliminate free play and allow smooth turning.
	2. Is the axle bent?	Place the axle on a flat surface and roll to see whether it is bent. If bent, replace with a new one.
	3. Is there dirt between the clutch cone and the screw section of the driver?	Clean thoroughly.
	4. Is the screw section between the clutch cone and the driver too greasy? And is the correct grease being used?	Wipe away the excess. And if an unsuitable grease (for example, thermosetting grease) is used, wipe off completely and use a suitable type such as 2 Molybdenum disulfide (Moly).
	5. Is there sufficient clutch spring friction?	If the clutch spring is bent or stretched it loses effectiveness so replace with a new one. Make sure that the clutch spring is assembled in the proper position.
	6. Is the correct lubricant being used?	Do not use a high-viscous lubrication. If unsuitable lubrication is used, clean thoroughly and use recommended lubricant.
	7. Is there any dirt between the hub shell and clutch cone?	Clean inside the tapered part of the hub shell and duty de the clutch cone.
	8. Are the grooves of the tapered section of the clutch cone (the parts touching the hub shell) worn?	Replace the clutch cone.
	9. Is the area where the screw of the hub axle touches the driver worn?	Replace the hub axle if the thread is worn.
B Braking angle is too big	1. Are the brake shoes worn?	Replace brake shoes if the grooves are completely worn.
	2. The same as A 1-6.	The same as A 1-6.
C Braking is not immediate	1. Are the brake shoes worn?	Replace brake shoes if the grooves are completely worn.
	2. Is there dirt between the clutch cone and the driver?	Clean the clutch cone and the driver.
	3. Is the clutch spring worn?	If the clutch spring is worn, replace with new one.
	4. The same as condition A 4.	The same as condition A 4.
	5. The same as condition A 6.	The same as condition A 6.
	6. Are the two brake shoes in position?	Ensure they are assembled properly.
D After braking, pedaling forward becomes steadily heavier	1. Is the clutch spring pressure sufficient?	Replace the clutch spring if it no longer possesses sufficient force.
	2. Is ball retainer C of the brake arm side or ball retainer A damaged?	If either of the ball retainers are damaged disassemble and replace with new ones otherwise the brake will eventually lock.
	3. Is the brake shoe or tapered section of the clutch cone worn?	Replace.
	4. Are the brake shoes assembled properly?	If assembled facing the wrong way, reassemble.
E Grating noises occurring while braking	1. Is the ball retainer damaged?	Disassemble and replace.
	2. Is the cone w/ Dust Cap, which touches the ball bearings, or the hub shell damaged?	Disassemble and clean inside the hub shell and replace the damaged part.
	3. Is the area inside the hub shell damaged?	If the damage inside the hub shell is minimal, rub with sandpaper or finely grained whetstone. If this does not work, then replace.
F Squeaking noises while braking	1. Is the correct lubrication being used?	If a non-specified grease is used then squeaking noises are liable to occur. Make sure gasoline, kerosene or spindle oil are not used for lubricating.
G Pedals have too much free play	1. Are the brake shoes worn?	Replace if the grooves of the brake shoe are worn away.
	2. Is the cone w/ Dust Cap loose?	Readjust the gear side cone w/ Dust Cap.
	3. Is there vibration at the joint of the brake arm and brake cone?	Replace the faulty parts.
	4. Are the tapered sections of the clutch cone and the brake cone worn?	Replace the faulty parts.
H While travelling, grating noises occur	1. Is the chain and small gear engaging properly?	If the chain is stretched too tightly or the small gear is worn then readjust the chain's tautness and replace any problem parts.
	2. Is the tapered section of the hub shell worn and is it touching the clutch cone?	Replace the hub shell.
	3. Same as condition E 2-3.	Same as condition E 2-3.
I While braking, the pedal jerks forward prior to stopping	1. Is the brake arm clip assembled correctly?	If a loose clip band has been used for a long period then the arm nut will also loosen and cause vibration of the hub axle. Assemble the clip band firmly to the chain stay and also assemble the arm nut firmly.

THEME: Techniques with Technology
LEARNING ACTIVITY: Design Technology
GRADE (suggested): 9
TIME (suggested): 10-25 hours

LEARNING OBJECTIVES:

The student will:	
Concepts:	
• understand the meaning of the terms "design" and "technology"	
• recognize the stages involved in a design problem-solving process	
Skills:	
• apply the principles of a design problem-solving process to the selection of a project and the production of a product	
• use previously learned knowledge and skills to produce an innovative project	
Attitudes:	
• appreciate the value of design and technology in society	
• recognize the value of aesthetics and utility in the design technology process	

RESOURCES:

Student Resources

General Industrial Education, Glencoe Publishing Company, Bennett and McKnight Division, 1988

Correlation of Learning Activity with Student Resource

Because of the diversity of projects that students may select, the following table outlines the project areas in the student resource that may lend themselves to a design problem-solving approach. Teachers are encouraged to supplement and complement the resource materials with material from other sources.

Concepts, Skills and Attitudes	<i>General Industrial Education</i>
Drafting:	
• Sketching	pp. 12-16
• Working Drawings	pp. 25-30
• Pictorial Drawing	pp. 35-38
• Charts and Graphs	pp. 40-41
• Projects	pp. 53-60
Metalworking:	
• Sheet Metal	pp. 39-48
• Art Metal	pp. 49-57
• Metal Casting	pp. 65-72
• Welding and Brazing	pp. 79-84
Graphic Arts:	
• Silk Screening	pp. 61-70
• Rubber Stamping	pp. 83-85
• Marbling	pp. 91-93
• Linoleum Block Printing	pp. 97-102
• Bookbinding	pp. 104-110

Teacher Resources

Magazines, journals, periodicals related to design and technology.
Museums, art galleries, show rooms, department stores, craftspersons, artists, designers.

TEACHER BACKGROUND INFORMATION

The purpose of this learning activity is to:

- encourage students to adapt a design problem-solving approach to a selected project
- enable students to develop knowledge and skills related to the project selected
- acquire attitudes that incorporate an appreciation of the value of design problem-solving approaches to a variety of life and work situations.

This learning activity may be used as an enrichment activity for students demonstrating a high level of interest and creativity in the technical/occupational course material.

DESIGN TECHNOLOGY

Design technology is concerned with:

- Technology – How things work (the use of scientific knowledge for practical purposes).
- Design – How well things work.

The design problem-solving process (DPSP) involves:

1. Observation – looking around and getting ideas
2. Analysis – considering alternative ideas
3. Task selection – selecting an idea and putting it into a design project format
4. Solution – producing the product.

Sketching and making visual and written notes are part of the design problem-solving process.
(See Resource 1: "The Design Problem-Solving Process")

1. OBSERVATION

The observation stage of the design problem-solving process includes looking around and considering what projects might be done. Another part of this stage is to develop in written and in visual form a DESIGN TASK DESCRIPTION for each possible project. A good design task description:

- states what needs to be done
- is brief and clear
- is written in both graphic and written form
- includes all important information
- lists all tools, equipment and supplies needed to make the object.

Examples of design tasks descriptions include:

1. Design a house number plate which can be attached to the side of a house. The numbers should be attractive and be clearly readable from the sidewalk.
2. Design a candle holder. It should look like something found in nature; e.g., a leaf, a flower, an animal. Wood, metal, plastic or clay may be used.
3. Design a container; e.g., a dish, a pot, a vase. The container should not need to be painted or varnished.

4. Design a monogram of your initials. The monogram should be attractive and be usable on a shirt, blouse, letterhead, etc.

STUDENT ACTIVITIES

1. Discuss: "What does it mean to design something?"
2. Brainstorm: "What are the ways in which we use technology in the home, at school, in the workplace?"
3. Working individually or in small groups, have students consider possible design projects they might produce as part of this learning activity. Have them:
 - a. state the design task clearly in writing
 - b. draw a sketch of what they think the finished product might look like
 - c. present their individual or their group's design task description to the rest of the class for discussion and feedback.
4. Have students bring any object to class and describe the object in terms of its design, its usefulness and its technology.

Community Partnerships

5. Take students on field trips to museums, art galleries, show rooms, department stores and have students identify what they consider to be good examples of:
 - design
 - technology
 - design technology.
6. Invite a designer to discuss the art and science of design and what makes an object a good example of design technology.

2. ANALYSIS

The second stage of the design problem-solving process involves:

- brainstorming
- research.

The following questions may be brainstormed and the answers recorded:

- How long will it take to produce each of the designs identified?
- What materials will be needed?
- Is cost an important factor? If so, how much will it cost to produce each of the designs identified?
- Will the design accomplish its intended purpose?
- Will it look good and be appealing to others?
- Is it safe to make it?
- Will it be safe to use?
- Who might use it?

Research is done to get more information about the problem. Research might involve using reference books from the library, looking through magazines, and visiting galleries, museums, stores, etc.

STUDENT ACTIVITIES

1. Have students, individually or in groups, brainstorm and record their responses to the questions noted in Resource 2: "Analysis of a Design Task Description". A separate brainstorming session may be required for each of the design task descriptions they previously produced.

Community Partnerships

2. Encourage students to use the research facilities both within the school and the community; e.g., librarian, museums, galleries, etc.
3. Encourage students to seek assistance from parents and other knowledgeable community members. If possible, students might seek and obtain the assistance of a mentor who has a special interest in the project being considered.
4. Invite artists and craftspersons to discuss how each of them decide what their next project is going to be. What questions they ask of themselves and the questions they ask of others.

3. TASK SELECTION

In this, the third stage of the design problem-solving process, a project is selected and plans are made to carry out the project and produce the selected product.

The task selection and project planning process may include:

- producing a rough drawing
- drawing a model to scale
- identifying the materials needed to produce the product
- collecting the needed materials
- outlining the procedure – the steps or instructions that must be followed in order to produce the product.

STUDENT ACTIVITIES

1. Have individual students or the previously arranged small groups of students select a feasible project from among the design task descriptions they have developed and analyzed.
2. Using basic drafting techniques, have students produce a more detailed sketch, a rough drawing and a scale model of their selected project. (Refer to the Technical/Occupational Thematic Learning Activity: "Wheeling and Dealing" for a brief description of basic drafting techniques and to *General Industrial Education*, pp. 12-16, 25-30, 35-39.)
3. Have students identify and collect the materials necessary to implement the project. (If students are expected to pay for all or part of the materials required to complete the product, the teacher should advise students of their financial responsibility at the beginning of this learning activity.)

Community Partnerships

4. Invite a draftsman, a senior high school drafting teacher or student or a designer to demonstrate and describe the techniques of sketching, rough drawing and scale drawing.

5. a. If available, utilize a community partner who has a computer equipped with Computer Assisted Design (CAD) software to demonstrate how technology is aiding in the design process.
- b. Have students discuss the advantages and disadvantages of using CAD technology as opposed to pencil and paper sketching and drawing.

4. SOLUTION

The fourth and final stage of the design problem-solving process involves:

- Carrying out the project – following the procedure/instructions outlined in Stage 3, Task Selection.
- Evaluating the product produced – How does it look? Does it do what it was designed to do? Was it completed on time?

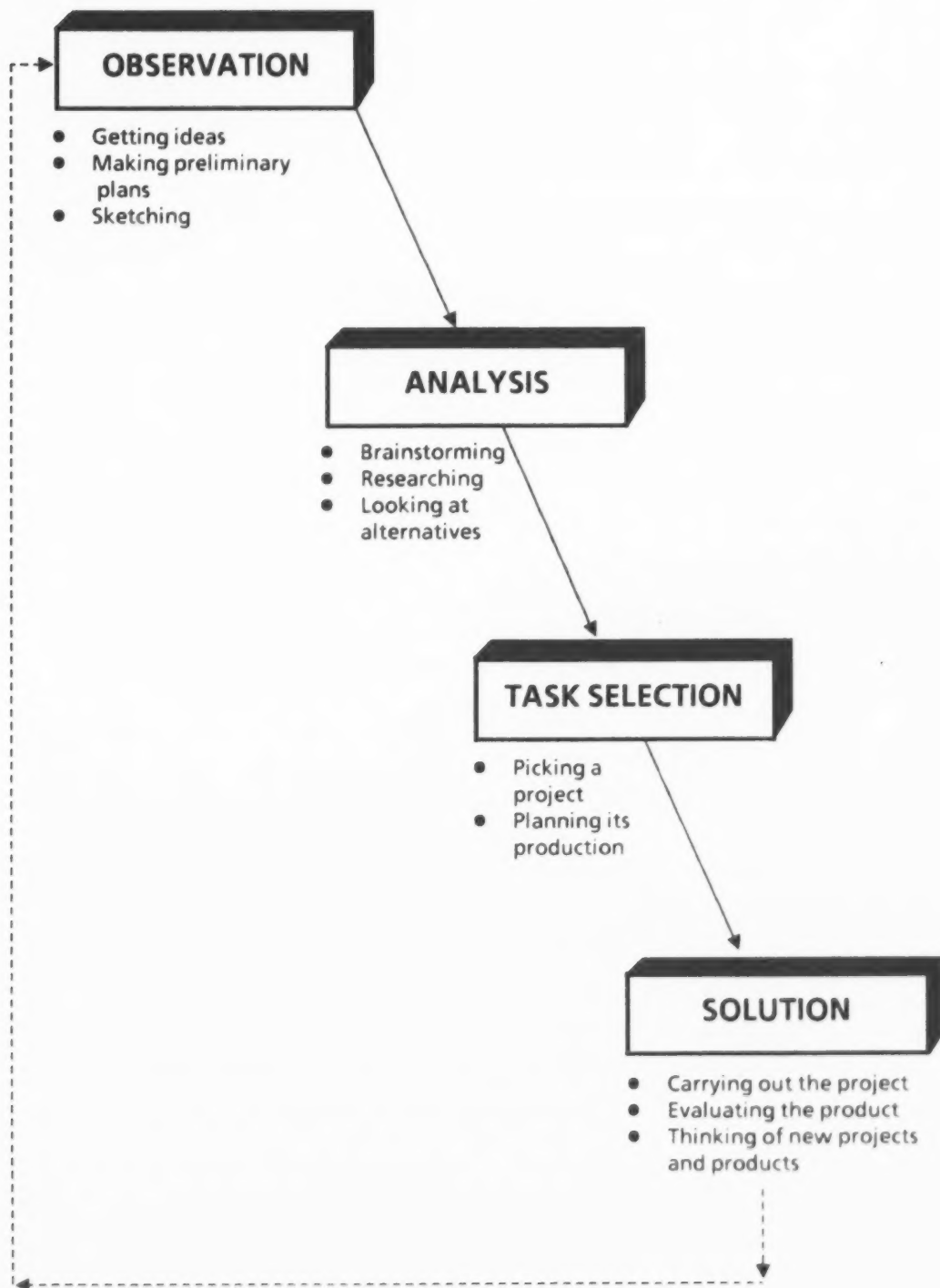
When students' products are completed, time should be provided for students to discuss their ideas for new projects and products. The feedback loop indicating that the DPSP can be an ongoing process is shown in Resource 1.

STUDENT ACTIVITIES

1. Have students produce their selected project. Samples of two products using plastics that might be developed through the DPSP are shown in Resource 3: "Constructing a Bud Vase in Plastic" and Resource 7: "Forming a Plastic Candy Dish". (Ensure that students identify and follow lab safety practices and procedures in each project.)
2. Encourage students to subject their products to close evaluation by themselves, by peers and by community partners.
3. Discuss the potential for entrepreneurial activities with different products. Calculate costs, sales price, profits.

Community Partnerships

4. Invite community partners (mentors, related craftspersons, artists, etc.,) to provide feedback on the students' products.
5. Display the product in the school, in a local shopping centre or store, in a community league building.
6. Invite a craftsperson, artist and a marketing specialist to discuss the potential for becoming an entrepreneur making and selling innovative items.
7. Consider integrating this learning activity with the Business Education Thematic Learning Activity: "Operating a Small Business". This may be done by planning and working cooperatively with the teacher of the I.O.P. Business Education or by the technical/occupational teacher using the "Operating a Small Business" thematic learning activity.



ANALYSIS OF A DESIGN TASK DESCRIPTION

Resource 2

Name(s): _____

Design Task Description: _____

Sketch of Project: _____

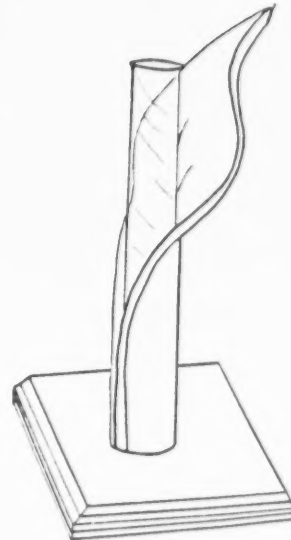
QUESTIONS	RESPONSES
Time: How long will it take to make?	
Materials: What materials will be needed?	
Cost: How much will it cost?	
Function: What will the product do?	
Appearance: Will it look good?	
Safety: Will it be safe to make? Will it be safe to use?	
Utility: Who might use it?	

CONSTRUCTING A BUD VASE IN PLASTIC

Resource 3

Materials

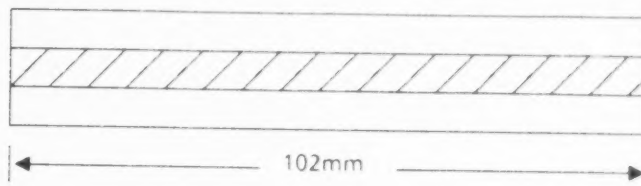
- 3 pieces of plastic 102mm x 102mm x 3mm (matching colours)
- 1 piece of plastic 100mm x 210mm x 3mm (complementary colours)
- 1 test tube
- plastic adhesive (e.g., Rez-N-Bond)
- plastic cleaner (e.g., Rez-N-Kleen)
- 220 sandpaper
- files
- disk sander
- buffer
- band saw
- electric frying pan
- goggles
- oven mitts



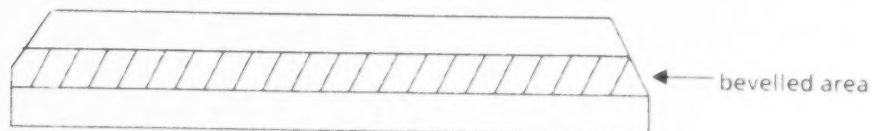
Procedure

A. Vase Base

1. Clean the surfaces of each of the 3 pieces of plastic (102mm x 102mm x 3mm) with a plastic cleaner.
2. Bond the surfaces together with a plastic adhesive and apply pressure to the bond for five minutes.



3. Use the disk sander to sand edges so that the base is 10cm x 10cm square. (Note: Safety goggles must be worn. See Resource 4.)
4. Set the disk sander table to 45° and sand a bevel on four sides. (The bevelled portion will be the top of the base.) Sand the bevel to half way through the centre layer of plastic.



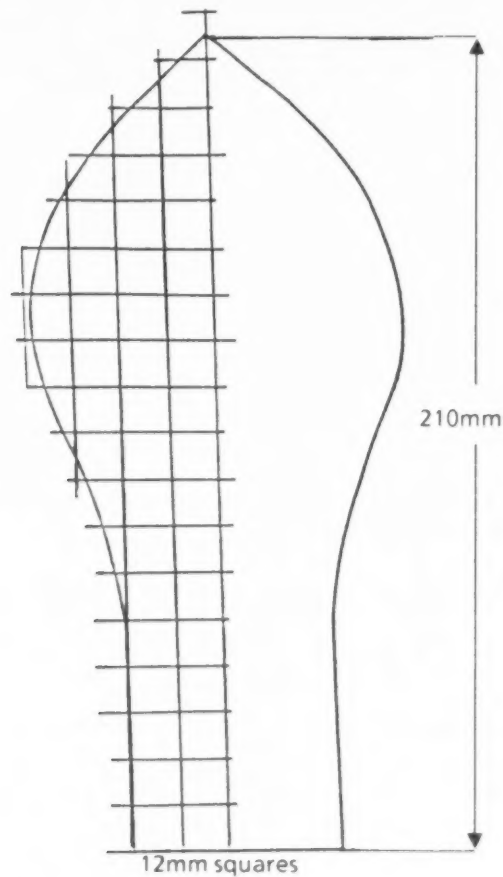
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5. File all edges and bevel smooth, removing all sander marks.
6. Dry sand edges and bevel smooth, then wet sand these surfaces, using #220 sandpaper.
7. When all sander and file marks are removed, obtain permission to use the buffer from your instructor. Buff all surfaces.
(Note: Safety goggles must be worn. See Resource 5: "The Buffer".)

B. Leaf

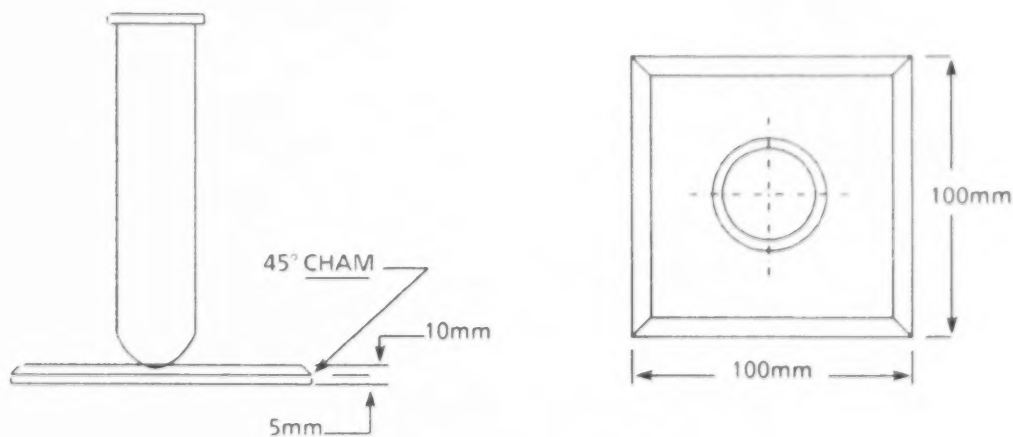
1. Draw a full scale drawing of the leaf pattern selected. This drawing will be used as a template.

(Not drawn to scale)



2. Using the bud vase template, trace the leaf pattern on the plastic piece
(Note: Trace the pattern slightly bigger than the template)
3. Cut out the leaf shape on the band saw. Cut outside the line so that the pattern can be filed and sanded to the line, at a later step
(Note: Safety goggles must be worn. See Resource 5: "The Buffer")

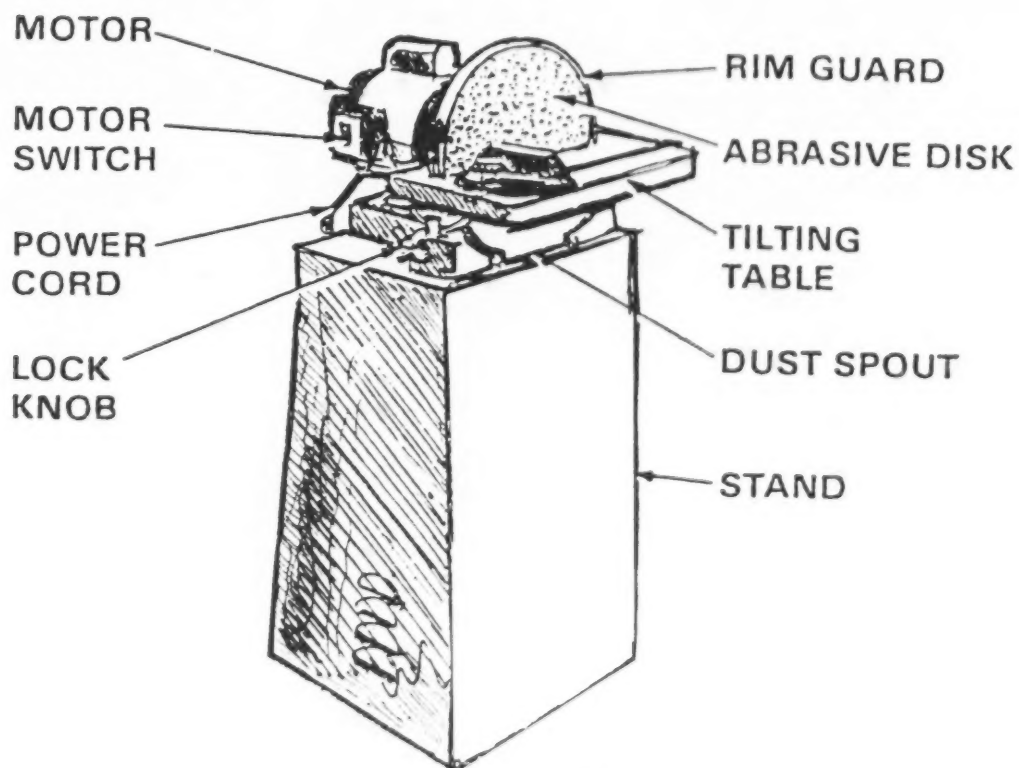
4. File edges smooth and round slightly.
5. Dry sand edges with #220 sandpaper until all marks are removed.
6. Wet sand all edges using #220 sandpaper.
7. Use the buffer to smooth all edges.
(Note: See Resource 5: "The Buffer".)
8. Remove paper covering from plastic and clean all plastic surfaces with a plastic cleaner.
9. Heat electric frying pan to 204°C.
10. Prepare the test tube.
11. When frying pan is at 204°C, place paper towel on the bottom of the pan and put plastic leaf shape on top of the paper.
12. Place the cover on the frying pan and heat the plastic until it will bend easily. (Note: WEAR OVEN MITTS WHEN CHECKING AND HANDLING HOT PLASTIC.)
13. When plastic can be bent easily, remove the plastic from the frying pan and bend the hot plastic tightly around the test tube, at the same time bend the top portion of the leaf away from the test tube (TWO PEOPLE MAY BE REQUIRED). Hold the leaf in position until the plastic hardens.
14. When leaf has cooled, slide the test tube out of the plastic leaf shape.
15. Use the disk sander and a file to smooth the bottom of the leaf shape so that it fits squarely on the base. (See Resource 4: "The Disk Sander".)
16. Apply plastic adhesive to the bottom of the leaf and bond the leaf to the centre of the base, bevelled side up.



17. Insert the test tube into the leaf shape.
18. Clean-up work area.
19. Return all materials to their correct storage areas.
20. Evaluate the finished product:
 - What does it look like?
 - Does it look like the original design?
 - Can it do what it was designed to do?
 - How long did it take to make?
 - How much did it cost in materials?
 - Would people buy similar products?
 - How much could similar products be sold for?
 - Could producing a number of these products be profitable? How? How many products would need to be sold in order to make \$100, \$500, \$1 000 profit?
21. Consider other products that could be made using the Design Problem-Solving Process.

Safety Rules:

1. Operate only with the teacher's or supervisor's permission and after completing the Safe Operational Procedures Checklist.
2. Eye protection and other appropriate protective clothing must be worn at all times when using the disk sander.
3. Remove all jewellery (watches, rings, bracelets, neck chains).
4. Make sure that adhesive is holding abrasive disk tightly to the revolving platen.
5. Make sure that abrasive disk is not damaged.
6. Hold material to be sanded flat against the table and keep hands clear of the abrasive disk.
7. Adjust the work table to within 16mm of the disk.
8. Perform the work on the side of the disk rotating downward.
9. Do not leave this machine until it has coasted to a full stop or been stopped with a piece of scrap wood.



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DISK SANDER – SAFE OPERATING PROCEDURES CHECKLIST Resource 4 (cont'd)

Instructions: Each item must be checked (✓) and the completed sheet signed by both the student and the teacher or supervisor. Completion of the checklist indicates basic competency in operating a disk sander.

BEFORE STARTING MACHINE

- | | |
|--|----------|
| 1. Roll up sleeves and remove necktie, jewellery, etc. | 1. _____ |
| 2. Tie back long hair. | 2. _____ |
| 3. Wear safety clothing (goggles, etc). | 3. _____ |
| 4. Adjust guide for proper height of cut. | 4. _____ |
| 5. Ensure that all guards are in place. | 5. _____ |
| 6. Check sanding wheel for proper size. | 6. _____ |
| 7. Check start-up procedures with the teacher or supervisor. | 7. _____ |

GENERAL SAFETY PROCEDURES

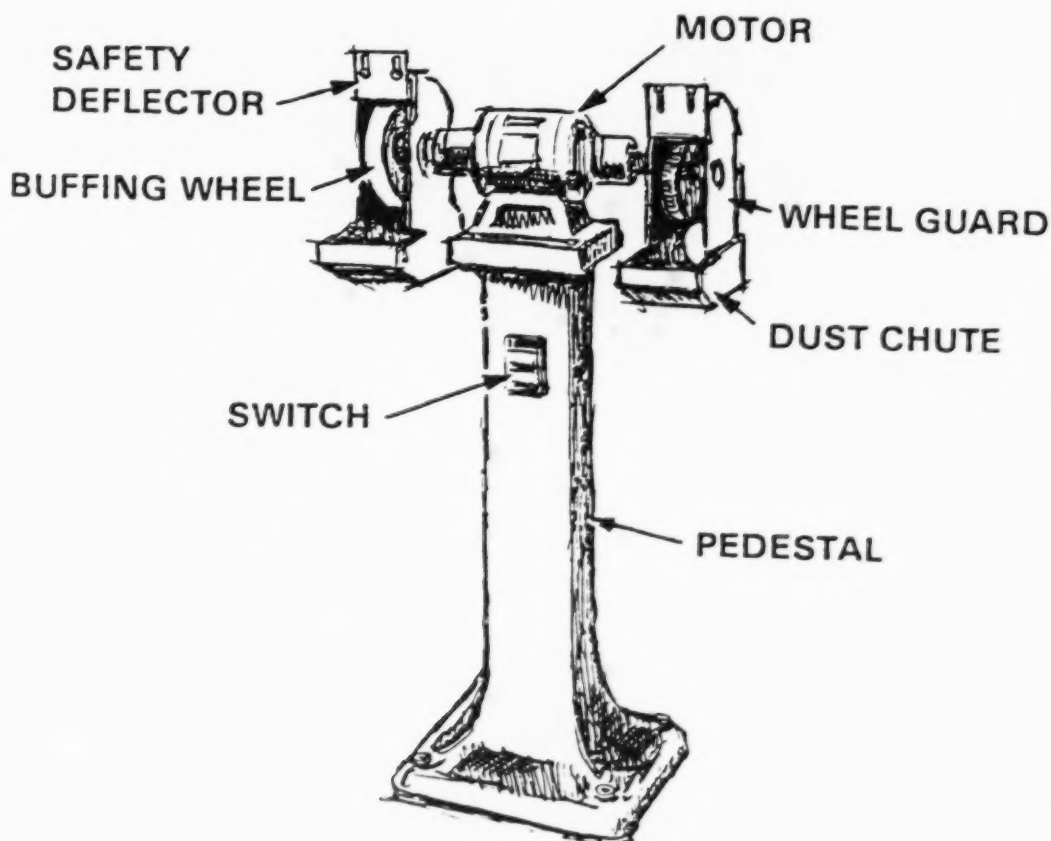
- | | |
|--|-----------|
| 1. Keep hands away from moving parts | 1. _____ |
| 2. Use proper lighting | 2. _____ |
| 3. Use brush to remove debris, <u>never a hand</u> | 3. _____ |
| 4. Make sure adhesive is holding abrasive disk tightly to the revolving platen. | 4. _____ |
| 5. Make sure that the abrasive disk is not damaged | 5. _____ |
| 6. Adjust work table to within 16mm of the disk. | 6. _____ |
| 7. Reform the work on the side of the disk rotating downward. | 7. _____ |
| 8. Never leave machine while it is running | 8. _____ |
| 9. Keep floor clean around machine. | 9. _____ |
| 10. Stop machine before making adjustments or oiling | 10. _____ |
| 11. Keep table free of tools, unnecessary supplies or other dangerous materials. | 11. _____ |
| 12. Give undivided attention to the machine and to the task. | 12. _____ |

I have demonstrated or completed all of the above checked items to the satisfaction of the teacher or supervisor.

Student's Signature

Teacher's/Supervisor's Signature

1. Operate only with the teacher's or supervisor's permission and after completing the Safe Operational Procedures Checklist.
2. Eye protection and other appropriate protective clothing must be worn at all times when using the buffer.
3. Remove all jewellery (watches, rings, bracelets, neck chains).
4. Buff using the lower half of the buffing wheel.
5. Stand to one side of the wheel when buffing or applying compound.
6. Use care when buffing around corners or openings where the wheel could grab and throw the work piece.
7. Never use gloves, rags or part of a shop coat to hold the work piece.
8. Never buff a leading edge.



Instructions: Each item must be checked (✓) and the completed sheet signed by both the student and the teacher or supervisor. Completion of the checklist indicates basic competency in operating a buffer.

BEFORE STARTING MACHINE

- | | |
|---|----------|
| 1. Roll up sleeves and removes necktie, jewellery, etc. | 1. _____ |
| 2. Tie back hair if long. | 2. _____ |
| 3. Wear safety clothing (goggles, etc). | 3. _____ |
| 4. Adjust guide for proper height of cut. | 4. _____ |
| 5. Ensure that all guards are in place | 5. _____ |
| 6. Check blade for proper size. | 6. _____ |
| 7. Ensure that the area behind the buffer is open and that no one else is in the safety zone. | 7. _____ |
| 8. Check start up procedures with the teacher or supervisor. | 8. _____ |

GENERAL SAFETY PROCEDURES

- | | |
|---|-----------|
| 1. Keep hands away from moving parts | 1. _____ |
| 2. Use proper lighting. | 2. _____ |
| 3. Use brush to remove debris, <u>never a hand</u> . | 3. _____ |
| 4. Use care when buffing around corners. | 4. _____ |
| 5. Never use gloves, rags or part of a shop coat to hold the work piece. | 5. _____ |
| 6. Never buff a leading edge | 6. _____ |
| 7. Never leave machine while it is running. | 7. _____ |
| 8. Keep floor clean around machine | 8. _____ |
| 9. Stop machine before making adjustments or oiling | 9. _____ |
| 10. Keep table free of tools, unnecessary supplies or other dangerous materials | 10. _____ |
| 11. Give undivided attention to the machine and to the task. | 11. _____ |

I have demonstrated or completed all of the above checked items to the satisfaction of the teacher or supervisor.

Student's Signature

Teacher's/Supervisor's Signature

THE BAND SAW – SAFETY

Resource 6

1. Operate only with the teacher's or supervisor's permission and after completing the Safe Operational Procedures Checklist.
2. Eye protection must be worn at all times while using the band saw.
3. Remove all jewellery (watches, rings, bracelets, neck chains).
4. Tie back long hair.
5. Complete attention should be directed toward work being done.
6. Adjust the upper blade guide assembly approximately 6mm above the stock being cut.
7. Fingers should never be closer than 5cm to the blade.
8. Position hands on stock being so they won't be in the path of the blade.
9. When cutting, never stand on right side of the machine – if blade breaks injury may result.
10. Before backing out of a cut, turn the power off. This practice should be avoided as much as possible.
11. Shut power off immediately if the blade should break.

BAND SAW – SAFE OPERATIONAL PROCEDURES CHECKLIST

Resource 6 (cont'd)

Instructions: Each item must be checked (✓) and the completed sheet signed by both the student and the teacher or supervisor. Completion of this checklist indicates basic competency in operating a band saw.

BEFORE STARTING MACHINE

- | | |
|---|----------|
| 1. Roll up sleeves and remove necktie, jewellery, etc. | 1. _____ |
| 2. Tie back long hair. | 2. _____ |
| 3. Wear safety clothing (goggles, etc.) | 3. _____ |
| 4. Adjust guide for proper height of cut. | 4. _____ |
| 5. Ensure that all guides are in place. | 5. _____ |
| 6. Check blade for proper size. | 6. _____ |
| 7. Ensure that back gears are engaged for cutting steel or ferrous metal. | 7. _____ |
| 8. Check start up procedures with the teacher or supervisor. | 8. _____ |

GENERAL SAFETY PROCEDURES

- | | |
|---|-----------|
| 1. Keep hands away from moving parts. | 1. _____ |
| 2. Use proper lighting. | 2. _____ |
| 3. Use a brush to remove chips, <u>never a hand</u> | 3. _____ |
| 4. Avoid backing up of stock. | 4. _____ |
| 5. Avoid crowding of the saw. | 5. _____ |
| 6. Never leave machine while it is running. | 6. _____ |
| 7. Keep floor clean around machine. | 7. _____ |
| 8. Stop machine before making adjustments or oiling. | 8. _____ |
| 9. Keep table free of tools, unnecessary supplies or other dangerous materials. | 9. _____ |
| 10. Give undivided attention to the machine and to the task. | 10. _____ |

I have demonstrated or completed all of the above checked items to the satisfaction of the teacher or supervisor.

Student's Signature

Teacher's/Supervisor's Signature

FORMING A PLASTIC CANDY DISH

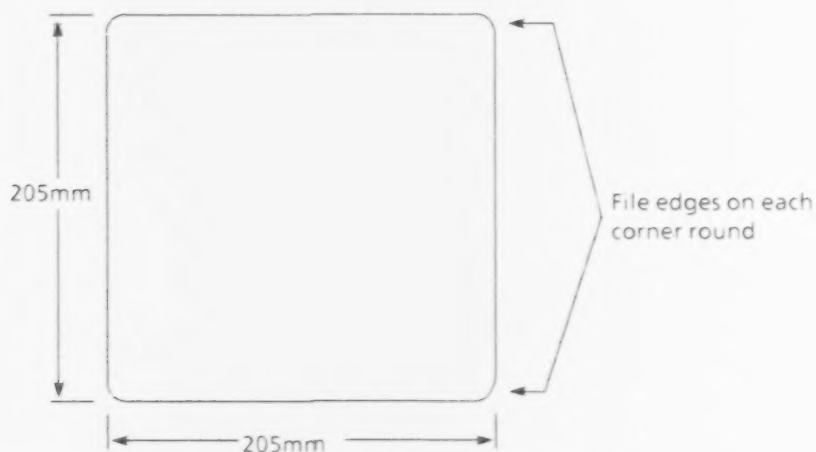
Resource 7

Materials

- plexiglas (210mm x 210mm)
- tri-square
- pencil
- disk sander
- band saw
- files
- plastic cleaner
- sandpaper (wet and dry)
- electric frying pan
- safety goggles
- safety gloves

Procedure

1. Use the tri-square and pencil to mark out one square on the paper covering the plexiglas sheet (205mm x 205mm).
2. Cut out on the outside line the measured section using the band saw.
(Note 1: Eye protection must be worn. See Resource 6: "The Band Saw")
(Note 2: The edges will be rough.)
3. Sand the edges to the marked lines using the disk sander.
(Note: Eye protection must be worn. See Resource 4: "The Disk Sander".)
4. Use a fine file and shape the corners of the plexiglas as shown.



5. First, use wet sandpaper and then dry sandpaper to remove scratches.
6. Remove the protective paper from the plexiglas and remove any glue that might be stuck on the plexiglas (use plastic cleaner).
7. Turn on the electric frying pan to 204°C. Place some clean paper towels in the bottom of the frying pan to prevent the plastic from scratches.

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8. When the frying pan is up to temperature (about 5 min.), place the polished piece of plexiglas on the paper towels to heat. Flip the plastic every 1-1½ minutes to ensure even heating.
9. Check the plexiglas in the frying pan every few minutes to see if it is hot enough to bend with slight hand pressure.
(Note: Heat resistant safety gloves must be worn.)
10. Shape the heated plexiglas to the design selected.
(Note: The shaping of the heated plastic may be done with the hands or by using a wooden jig or mold. These molds may be purchased or made as part of the Design Problem-Solving Process.)
11. Check for balance and overall appearance of the candy dish. If more shaping is required and the plexiglas has hardened, reheat the plexiglas in the frying pan until the plexiglas is soft enough to reshape.
12. If reheated and reshaped, check again for balance, shape and overall appearance.
13. Clean up work area.
14. Return materials to their correct storage areas.
15. Evaluate the finished product:
 - What does it look like?
 - Can it do what it was designed to do?
 - How long did it take to make?
 - How much did it cost to make?
 - Would people buy similar products?
 - How much could similar products be sold for?
 - Could producing a number of these products be profitable? How? How many products would need to be sold in order to make \$100, \$500, \$1 000 profits?
16. Consider other products that could be developed using the Design Problem-Solving Process.

THEME: Techniques with Technology
LEARNING ACTIVITY: Getting Into the Bigger Picture
GRADE (suggested): 9
TIME (suggested): 8-10 hours

LEARNING OBJECTIVES:

The student will:

Concepts:

- understand the basic principles of photographic enlarging
- begin to recognize the employment and occupational opportunities available to creative photographers

Skills:

- demonstrate the ability to make a simple photographic enlargement from a negative
- demonstrate improved ability to process films and produce negatives

Attitudes:

- recognize the value of photographs in our society
- develop increased appreciation for photography as a creative art form

RESOURCES:

A photographic darkroom with basic fittings, equipment and supplies. Specific resources required for each student activity are listed in the resource section of the learning activity.

Student Resource

General Industrial Education, Glencoe Publishing Company, Bennett McKnight Division, 1988

Correlation of Learning Activity with Student Resource

Concepts, Skills and Attitudes	<i>General Industrial Education</i>
Graphic Arts: Photography • developing film • contact printing • enlarging	p 72 pp 73-75 pp 76-78 pp 76-82

TEACHER BACKGROUND INFORMATION

This learning activity is designed to further develop students' concepts, skills and attitudes in the visual communications career field in general and in the practice of photography in particular. The content of this learning activity builds on the concepts, skills and attitudes acquired by students in the related Learning Activity: "Getting in the Picture".

The later learning activity should proceed this learning activity. However, teachers may choose to offer both learning activities in either Grade 8 or Grade 9.

Additional or alternative learning activities related to the field of visual communications may be selected by the teacher. Suggested activities contained in *General Industrial Education*:

- rubber stamping (pp. 85-90)
- marbling (pp. 90-93)
- hot stamping (pp. 94-96)
- linoleum block printing (pp. 97-103).

Review of Previous Learnings

Review the major concepts and skills addressed in the prerequisite learning activity, "Getting into the Picture":

- career potential
- safety in the photographic area
- operating a SLR camera
- consider basic composition factors
- controlling exposure
- adjusting shutter speed
- developing film
- making a contact print.

STUDENT ACTIVITIES

Have students:

- consider composition factors
- shoot a roll of black and white film
- develop the film
- make a contact print
- select three or more negatives for enlarging.

Acknowledgement

The material contained in this learning activity has been adapted from:

Graphic Communications: Photography
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Enlarging

Basically all enlargers consist of a light source, a means of distributing the light evenly, a negative carrier, a lens, a focusing device, a means of changing the distance of the lens to the negative and an easel for holding the paper.

Light sources for enlargers usually fall into two categories, incandescent and cold light. Incandescent bulbs are made from opal glass and range from 75 watts to 300 watts. Cold light comes in the form of fluorescent tubes manufactured in curricular form or grid form.

Enlarging lenses are designed to produce an extremely flat field so that even if they are used at their widest aperture, all portions of the negative will be in equally sharp focus.

The focal length of the lens controls the size of the image so it is necessary to use lenses of different focal length for negatives of different size.

Enlargers must have an arrangement for focusing the image. This is usually in the form of a device for changing the lens to negative distance. The image must be refocused each time the negative or magnification factor is changed.

To change the image size, the lamp house and negative assembly is raised or lowered.

A basic enlarger is shown in Resource 1: "Basic Enlargers".

STUDENT ACTIVITIES

1. Have students research and record the difference between the diffusion and condenser enlargers shown in Resource 1: "Basic Enlargers". What are the advantages of one against the other?

Community Partnerships

2. Have students visit photographic supply centres and investigate and record the cost and the features and benefits of different enlargers. (Use Resource 2: "Types of Enlargers" to record the information.)
3. Invite professional photographers to discuss and demonstrate enlargement techniques.
4. Invite parents of students in the class to bring "treasured" photographs and discuss why the prints are so treasured.
5. Have students visit a quick-print operation and identify the techniques used for enlarging.

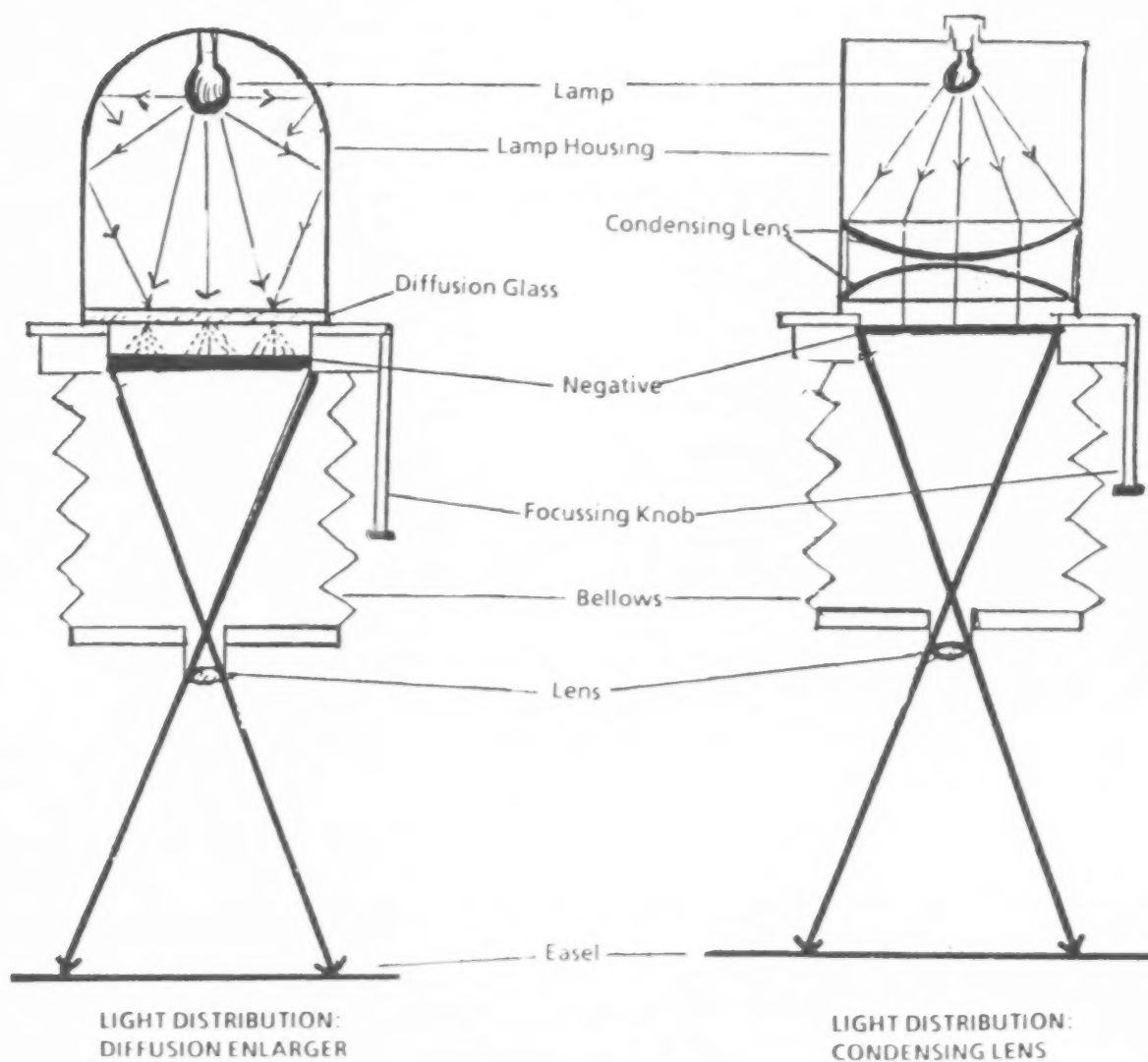
Producing an Enlargement

An enlargement is a picture that is printed larger than the negative from which the picture is made. Enlarging is a photographic process that requires knowledge, skill and creativity.

Resource 3: "Making an Enlargement" outlines one enlarging process. Teachers may modify the procedure to suit the facilities and equipment available.

BASIC ENLARGERS

Resource 1



TYPES OF ENLARGERS

Resource 2

Visit a photographic supplier and obtain information about different enlargers presently available.

Make of Enlarger	Model	Cost	Features/Benefits
1.			
2.			
3.			
4.			

Materials

- enlarger
- negative carrier
- easel
- 3 developing trays
- chemicals - developer, stop bath, fixer
- printing paper
- timer and/or watch
- graduated cup
- print tongs
- paper cutter or scissors

Procedure

Before starting, read all of the stages in the procedure.

1. Lay out 3 trays in the sink.
2. Measure 227ml of print developer into a graduated cup and pour into the first tray.
3. Pour 555ml of water into the printing tray with the print developer.
4. Measure 680ml of stop bath into the graduated cup and pour this into the third tray.
5. Place the negative in the carrier with the emulsion side down. (When placing or removing negatives in the carrier do not pull the negatives between the pressure plates or the negative will be scratched.)
6. If using an adjustable easel, set the masking guides for the desired border size.
7. Switch on the safe light and turn off the room light.
8. Switch on the enlarger light.
9. Focus the enlarger with the lens wide open until the image is sharp.
10. If the image on the easel is too small, raise the enlarger head and refocus; if the image is too large, lower the enlarger head and refocus.
11. After adjusting the image to the correct size, make sure that there is the sharpest possible focus with the lens wide open.
12. Close the lens down until the fine detail just begins to disappear, but is still plainly visible. Turn off the enlarger.
13. Select the proper grade of enlarging paper. (Consult with the teacher or supervisor.) Take a sheet of paper from the package and cut it into one-inch test strips and return all but one of these strips to the package.
14. Place one of the test strips on the easel in a position to sample the greatest possible graduation in tone.

15. Cover three fourths of the test strip with a piece of cardboard. Expose this section for five seconds.
16. Move the cardboard cover so that approximately one half of the test strip is uncovered and expose for five seconds.
17. Move the cardboard to expose three fourths of the test strip and expose for five seconds.
18. Uncover the entire test strip and expose for another five seconds. This will fill a strip with exposures of 5, 10, 15, and 20 seconds.
19. With a pair of print tongs, hold the test strip by one of its edges and place it in the developer with the emulsion side down (curl down). Leave it in the developer for 90-120 seconds. Be sure to slide the test strip or print into the developer quickly in order to ensure even development.
20. After about 30 seconds turn the print over. The image can be seen developing. Make sure the entire piece of paper is wetted with the print developer.

(Note: BE SURE NOT TO PUT THE TONGS FROM THE DEVELOPER INTO THE STOP BATH.)

21. Agitate constantly by either of the following methods:
 - (a) With the print tongs, grasp the edge of the print and move your hand back and forth to move the print through the solution.
 - (b) Grasp the tray by either side with your hands. Pick up one side of the tray about 1/2 of an inch and then set it down again. Do the same with your other hands. Use your hands alternately so as to give a rocking arrangement.
22. Leave for 90-120 seconds and then remove the print with the print tongs and put it into the stop bath (middle tray). Agitate as just explained.
23. Leave for 30-60 seconds and then remove the print with a second set of print tongs and put the print into the fixer (right tray). Agitate again.
24. After a minimum of 2 minutes in the fixer, the test strip may be examined under white light. (Inspect the test strip under white light and select the length of exposure which produced the most acceptable result. It may be found on inspection, that a time between two of the blocks would yield the best print. If this is the case make another test strip, exposing "best" selected time. If this strip produces a satisfactory result, the knowledge is available to make a full size print. If the contrast is not satisfactory, a harder or softer grade of paper should be used.)
25. When developing the print, the print must remain in the fixer for 5-10 minutes.
26. If fresh fixer is used, more than 10 minutes in the fixer solution will tend to bleach the prints.

(Note: BEFORE HANDLING ANY PAPER, MAKE SURE YOUR HANDS ARE CLEAN AND DRY)

27. Place a full sheet of print paper in the easel and expose for the proper time. (Process in the same way used for processing the test sheet.)

28. Plug in the printer dryer and turn it on to full setting. Make sure it is closed so the metal plate heats up evenly.
29. Connect a hose from a tap to the printer washer. Turn on the hot and cold water taps so as to get a temperature close to or slightly warmer than room temperature.
30. After the prints have been in the fixer for the required amount of time, place them in the print washer. (Prints must be washed after processing to remove all traces of processing chemicals, particularly fixing solution. To make sure the prints do not stick to the side of the tank, agitate and circulate them in the swirling motion of the water.)
31. Wash the prints for at least 30 minutes.
32. To dry the prints:
 - (a) Open the canvas cover of the print dryer.
 - (b) Place the prints face down on the polished metal sheet (image against the sheet of metal).
 - (c) Close the canvas cover on the dryer. Be sure that none of the prints are overlapping or folded.
 - (d) With the roller, make several passes over the canvas cover to keep the prints flat as they are drying. Make 5 or 6 passes every minute until the prints are dry.
33. When the prints are dry, remove them from the dryer. (To test if the prints are dry, lift the canvas cover and the print should be slightly curled and resting by its edges on the sheet of metal. If the print is still attached to the metal plate, close the cover and continue drying.)
34. Unplug the dryer after drying your last print.
35. Discard the developer by washing it down the sink.
36. Return the stop bath to its container and return the fixer to its container. Cap all the containers tightly.
37. Wash all the trays, tools and equipment used. Return them to their proper storage places after drying them with paper towelling.
38. Clean the work area thoroughly.
39. Trim and mount your best picture. (The teacher or supervisor will demonstrate the trimming and mounting procedure.)

Student Activities

1. What factors should be considered when composing an enlargement?
 - How large may a 35mm negative be enlarged?
 - What happens when enlargement is made too large?
2. Bring family negatives and, with the teacher's or supervisor's permission, make enlargements.

- 3 As a class project, take photographs of "A Day in the Life of the School":
 - process the film and select best negatives
 - prepare various size enlargements
 - trim and mount the photographs
 - set up a display in the school and/or in a local shopping mall, community centre, senior citizens' centre, etc.
- 4 In cooperation with the I.O.P. business education teacher and students, consider the possibility of setting up a small business venture producing and marketing photographs of the school, school teams, individual portraits. (Teachers considering this type of entrepreneurial activity should examine the business education Thematic Learning Activity: "Operating a Small Business".)

THEME: Techniques with Technology
LEARNING ACTIVITY: Giving it the Gas: Building a Model Dragster
GRADE (suggested): 9
TIME (suggested): 20-25 hours

LEARNING OBJECTIVES:

The student will:	
Concepts:	• understand the basic principles and processes of production • recognize the need to develop and follow a plan
Skills:	• begin to develop abilities related to drafting, hand tools and power equipment usage • design and produce a model CO₂ dragster to a set of specifications
Attitudes:	• appreciate the importance of working within given limitations • display pride in personal performance and production

RESOURCES:

Student Resources

General Industrial Education, Glencoe Publishing Company, Bennett McKnight Division, 1988

Correlation of Learning Activity with Student Resource

Concepts, Skills and Attitudes	<i>General Industrial Education</i>
Woodworking: • safety • planning • files and farming tools • drilling holes • finishing • jigsaw • drill press • careers	pp. 2-4 pp. 9-12, 13-16 pp. 36-39 pp. 41-48 pp. 63-71 pp. 72-74 pp. 75-78 pp. 82-83

Tools, equipment and material resources required in this learning activity are listed in Resource 1: "Model CO₂ Dragster".

TEACHER BACKGROUND INFORMATION

This learning activity will introduce students to the three basic principles and processes of production:

1. Design
 - sketching
 - drawing to scale
2. Materials
 - selecting materials
 - acquiring competency with tools and equipment
3. Production
 - developing a prototype
 - producing the model dragster
 - finishing the model dragster

The concepts, skills and attitudes developed by students through this learning activity can be related to production processes and strategies used in each of the eight occupational clusters and in particular to the fields of Agricultural Mechanics, Building Services, Construction Services and Automotive Services that require employees who are able to:

- follow detailed instructions
- produce and interpret simple drawings
- handle materials, tools and equipment carefully and safely
- work cooperatively with others
- maintain a safe and sanitary work area.

In addition, this learning activity may provide students with the motivation to explore entrepreneurial crafts and/or opportunities in such endeavours as model building, designing, painting, etc. An integrated learning activity may be facilitated by students and teachers using the products produced in this as the basis for setting up and operating a small business. (See Thematic Learning Activity: "Operating a Small Business".)

SAFETY

Review general safety practices as outlined in *General Industrial Education* (pp 2-4) and in the Thematic Learning Activity: "Safety, the Tools of the Trade" and modify the information to meet the needs of the students and the facilities, tools and equipment available.

Guidelines for the safe operation of power equipment that may be used in this learning activity are provided in Resources 2, 3 and 4. Ensure that each student is instructed in the safe use of each tool and each piece of equipment needed to complete this learning activity and that each has developed an appropriate level of safety awareness.

THE DESIGN PROCESS

The design process outlined in this learning activity involves four stages:

- (a) Thumbnail Sketches. These are small doodles on paper to "see" what the dragster is going to be like. Thumbnail sketches can be of the whole car or they can be just parts of a car such as the front end. They are called thumbnail sketches because of their size – small, about the size of a thumbnail. They are not detailed drawings, just quick sketches that provide ideas of the possible shapes for a dragster.

- (b) **Rough Sketches.** These are more detailed drawings of what the dragster will actually look like. They are larger than thumbnail drawings. Rough sketches are drawing to show the dragster from different points of view.
- (c) **Scale Drawing.** A scale drawing is a picture of the selected shape and style of dragster drawn smaller. In this project, the dragster will be drawn half-sized using 5mm by 5mm grid paper.
- (d) **Final Drawing.** The final drawing shows the exact dragster. The drawing is drawn to scale showing the actual size of the finished car. A final drawing is similar to the blueprints and other plans used in the automotive, construction and other product producing industries.

The teacher or supervisor may adapt these stages to meet the needs of the students and time available for the learning activity.

MATERIALS

The specific materials needed by each student to produce a CO₂ Race Car are listed in Resource 1: "Model CO₂ Dragster". Prior to using any of the tools or pieces of equipment listed, the teacher should:

- provide instruction in safe-use practices for each item
- ensure that each student is able to safely and carefully handle each item.

The production process provides opportunities for each student to become familiar with the safe operation of the following pieces of equipment:

Resource 2: "The Band Saw – Safety"

Resource 3: "The Drill Press – Safety"

Resource 4: "The Scroll or Jig Saw – Safety"

Teachers should adapt the safety material to suit the equipment available.

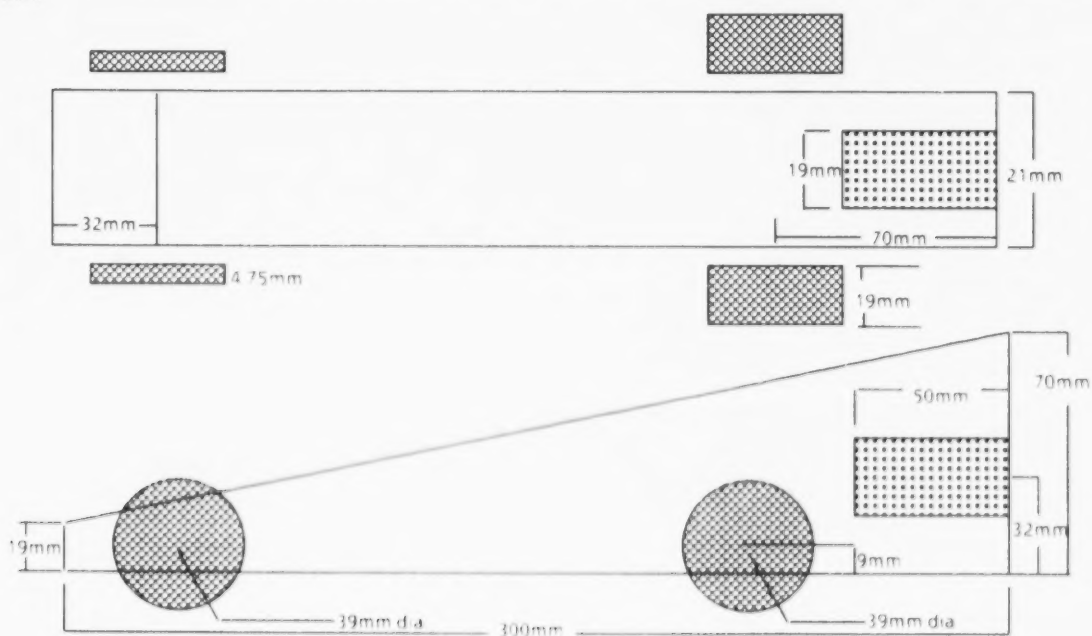
PRODUCTION

Sequenced operational instructions for producing the dragster are provided in Resource 1. Model dragster races may be organized at the school, within the district and between districts. To ensure that each model dragster conforms to similar standards, the following limitations are commonly used:

MODEL DRAGSTER STANDARD	LIMITATIONS	
	Minimum	Maximum
• Car Body Length	200mm	305mm
• Body Width (at wheels)	35mm	42mm
• Height (with wheels attached)	56mm	75mm
• Axle Hole (position above body bottom)	7mm	9mm
• Axle Hole Diameter	4.5mm	4.5mm
• Axle Hole (position from end of body)	9mm	70mm

MODEL DRAGSTER STANDARD	LIMITATIONS	
	Minimum	Maximum
• Wheel Base (distance between axles)	105mm	270mm
• Power Plant Housing Thickness	3mm	
• Mass (complete dragster)	30g	170g
• Screw Eyelet (distances apart)	155mm	270mm

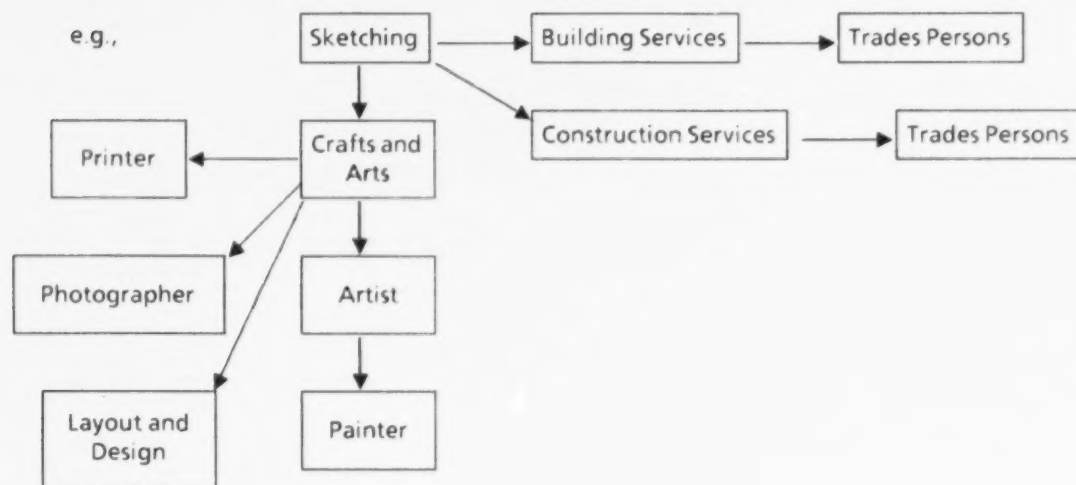
The "engine" used to power the model dragster is a CO₂ cartridge. Models that fail to conform to these limitations are usually excluded from competitions. A schematic of the model dragster is shown below.



STUDENT ACTIVITIES

1. Brainstorm to identify the things students learned in this learning activity.
2. Discuss: "How do the things learned in building a model dragster relate to different occupational clusters and specific occupations?"

- Have students draw a map to show the relationship between learnings derived in building the model dragster and different occupational clusters and specific occupations.



- Discuss: "How does the CO₂ cartridge cause the model to gain speed?" "How can the speed of the model be increased?"

Community Partnerships

- Invite teachers and students from other junior high schools and the local high school to participate in building and racing CO₂ model dragsters.
- Invite representatives from local guides/scouts, cubs/brownies and other youth groups to participate in building models.
- Invite parents or other knowledgeable community partners to discuss principles of design and how small changes in the shaping, sanding, decorating process may help the dragster race further and faster.
- Invite a science teacher to discuss and demonstrate basic principles of energy and propulsion as applied to cars, rockets, airplanes, bicycles, tricycles, etc.
- Encourage students to organize, plan and implement a model dragster competition and display at a local shopping mall, community centre, senior citizens' home, children's hospital/ward, etc.

Materials

- pine wood block (300mm x 70mm)
- wheel assembly (axles, washers, 2 wide track tread wheels, 2 narrow track tread wheels)
- masking tape
- graph/grid paper (5mm and 10mm)
- styrofoam block (300mm x 70mm)
- sandpaper (80, 120, 222 grit)
- files or surforms
- ruler and pencil
- screw eyelets (2)
- drill press
- band saw
- scroll saw/jigsaw

Procedure**A. Design**

1. Draw at least ten thumbnail sketches to show all possible shapes for a model dragster.
2. Select three of the best thumbnail sketches and draw a rough sketch of each of the best three thumbnail sketches.
3. Select the best rough drawing as the design for the scale model.
4. Draw a 0.5 scale model using 5mm grid/graph paper. Show the location of both axle holes.
5. Draw a full sized model of the rough drawing on 10mm grid/graph paper.
Show the location of:
 - both axles (top view and side view)
 - 2 screw eyelets (top view and side view).(Note 1: Accuracy is essential in the final drawing. The final drawing is used as the template (pattern) for cutting and shaping both the styrofoam prototype and the final wood model.)
(Note 2: The teacher or supervisor must approve the final drawing before beginning the prototype.)

B. Constructing the Prototype

6. Cut out the two full sized final drawings.
7. Use masking tape to tape the drawings to the styrofoam block.
8. Using the drawings as the template, draw the top view and side view outlines of the dragster on the styrofoam block.
9. Mark the axle locations on the block.
10. REMOVE AND SAVE THE TEMPLATE DRAWINGS.
11. Use the drill press with a 4.5mm drill bit. Drill the axle holes. (Note: Eye protection must be worn.)

12. Use the band saw or scroll saw to cut out the top view of the prototype.
13. Use sandpaper to shape and finish prototype.
14. Obtain the wheel assembly pieces from the teacher or supervisor and assemble them onto the prototype.
15. Check the prototype to see if it meets all limitations listed below.

	Correct	Incorrect
(a) Body Length	_____	_____
(b) Body Width	_____	_____
(c) Height	_____	_____
(d) Axles Above Bottom	_____	_____
(e) Axles From Body Ends	_____	_____
(f) Wheel Base	_____	_____
(g) Rear Height (with wheels)	_____	_____

	Minimum	Maximum
• Car Body Length	200mm	305mm
• Body Width (at wheels)	35mm	42mm
• Height (with wheels attached)	56mm	75mm
• Axle Hole (position above body bottom)	7mm	9mm
• Axle Hole (position from end of body)	9mm	70mm
• Wheel Base (distance between axles)	105mm	270mm
• Power Plant Housing Thickness	3mm	-
• Screw Eyelet (distances apart)	155mm	270mm

16. Test the prototype on a trial ramp or on the floor.

C. Producing the Model

17. Trace out the side view and top view design on the pine wood block (use the same procedure as followed for the prototype).
18. Mark the exact location for the axle holes.
19. Use the drill press and a 4.5mm drill bit to drill the 2 axle holes.
20. Use the band saw or scroll saw to cut out the top view and side view.

21. Use a file, surform and sandpaper to shape the wood to the designed shape.
(Note: Use 80 grit, 120 grit and finally 220 grit sandpaper to create a smooth finish to the model.)

D. Finishing

22. Determine colour scheme to be used on the dragster.
23. Paint the dragster with primer and allow to dry completely.
24. Mask areas as necessary with masking tape and paint with first coat of paint. Allow to dry.
(Note: Seal paint containers and thoroughly wash brushes immediately after each use.)
25. Apply second coat of paint (masking again if necessary). Allow to dry.
26. Apply pinstriping or stick-ons to dress up the model dragster.
27. Install the two screw eyes as near to each end of the model as possible and centred within the body width.
28. Sand smooth the wheels. Spokes may be cut from the wheels. Assemble the washers and wheels onto the dragster.
29. Test the dragster on the trial ramp or on the floor.
30. Check the completed model dragster to see if it meets all limitation listed below.

	Correct	Incorrect
(a) Body Length	_____	_____
(b) Body Width	_____	_____
(c) Height	_____	_____
(d) Axles Above Bottom	_____	_____
(e) Axles From Body Ends	_____	_____
(f) Wheel Base	_____	_____
(g) Rear Height (with wheels)	_____	_____

31. Install the CO₂ cartridge. (Follow the teacher's or supervisor's demonstration and directions.)
32. Evaluate the model:
- self-evaluation
 - teacher evaluation
 - peer evaluation.
33. Clean work area.
34. Return all materials to their correct storage areas.

CO₂ MODEL DRAGSTER – EVALUATION SHEET

Resource 1 (cont'd)

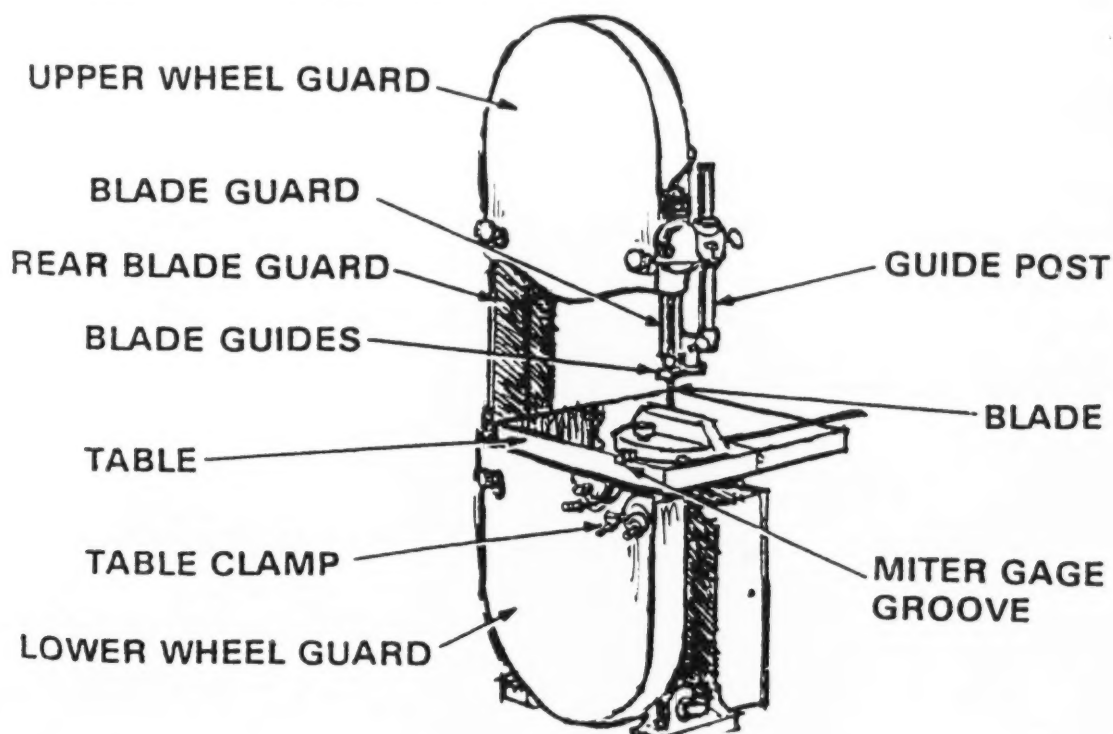
NAME: _____

DATE: _____

	POSSIBLE MARK	ACTUAL MARK
DESIGN		
Thumbnail sketches	3	
Rough sketches	3	
Final drawings	4	
PROTOTYPE		
Use of templates	3	
Use of drill press	3	
Use of band saw or scroll saw	3	
Sanding	3	
Installation of wheel assembly	3	
Meets specifications	3	
PRODUCTION MODEL		
Use of templates	5	
Use of drill press	5	
Use of band saw or scroll saw	5	
Installation of wheel assembly	5	
FINISHING		
Sanding	4	
Painting	4	
Decorating	4	
FINISHED SPECIFICATIONS		
	Minimum	Maximum
Car Body Length	200mm	305mm
Body Width (at wheels)	35mm	42mm
Height (with wheels attached)	56mm	75mm
Axle Hole (position above body bottom)	7mm	9mm
Axle Hole (position from end of body)	9mm	70mm
Wheel Base (distance between axles)	105mm	270mm
Power Plant Housing Thickness	3mm	
Screw Eyelet (distances apart)	155mm	270mm
TOTAL	100	
NOTES:		

Safety Rules

1. Operate only with the teacher's or supervisor's permission and after completing the Safe Operational Procedures Checklist
2. Eye protection must be worn at all times while using the band saw.
3. Remove all jewellery (watches, rings, bracelets, neck chains).
4. Tie back long hair.
5. Complete attention should be directed toward work being done
6. Adjust the upper blade guide assembly approximately 1/4 inch above the stock being cut.
7. Fingers should never be closer than 2 inches to the blade.
8. Position hands on stock being cut so as not to be in the path of the blade.
9. When cutting, never stand on right side of the machine – if blade breaks injury may result.
10. Before backing out of a cut, turn the power off. This practice should be avoided as much as possible.
11. Shut power off immediately if the blade should break.



BAND SAW – SAFE OPERATIONAL PROCEDURES

Resource 2 (cont'd)

Instructions: Each item must be checked (✓) and the completed sheet signed by both the student and the teacher or supervisor. Completion of this checklist indicates basic competency in operating a band saw.

BEFORE STARTING MACHINE

- | | |
|---|----------|
| 1. Rolls up sleeve and remove necktie, jewellery, etc | 1. _____ |
| 2. Tie back long hair. | 2. _____ |
| 3. Wear safety clothing (goggles, etc) | 3. _____ |
| 4. Adjust guide for proper height of cut | 4. _____ |
| 5. Ensure that all guides are in place | 5. _____ |
| 6. Check blade for proper size | 6. _____ |
| 7. Ensure that back gears are engaged for cutting steel or ferrous metal. | 7. _____ |
| 8. Check start up procedures with the teacher or supervisor. | 8. _____ |

GENERAL SAFETY PROCEDURES

- | | |
|---|-----------|
| 1. Keep hands away from moving parts. | 1. _____ |
| 2. Use proper lighting. | 2. _____ |
| 3. Use a brush to remove chips, <u>never a hand</u> . | 3. _____ |
| 4. Avoid backing up of stock. | 4. _____ |
| 5. Avoid crowding of the saw. | 5. _____ |
| 6. Never leave machine while it is running | 6. _____ |
| 7. Keep floor clean around machine. | 7. _____ |
| 8. Stop machine before making adjustments or oiling | 8. _____ |
| 9. Keep table free of tools, unnecessary supplies or other dangerous materials. | 9. _____ |
| 10. Give undivided attention to the machine and to the task. | 10. _____ |

I have demonstrated or completed all of the above checked items to the satisfaction of the teacher or supervisor.

Student's Signature

Teacher's/Supervisor's Signature

THE DRILL PRESS – SAFETY

Resource 3

1. Operate only with the teacher's or supervisor's permission and after completing the "Safe Operating Procedures Checklist".
2. Eye protection must be worn at all times while working on the drill press.
3. Remove all jewellery (rings, watches, bracelets, neck chains, etc.).
4. Tie back long hair.
5. Remove chuck key immediately after installing or removing a bit.
6. Auger bits are never to be used in a drill press.
7. Brush the table with a shop brush, never with your hand.
8. Drill table hole must be directly under bit to avoid damage to the table.
9. If at all possible use a scrap block of wood to drill into under the work piece.
10. To prevent injury to the hand when working on the drill press always secure your work piece to the table by either – clamping for large pieces or vise or jig for small pieces.
11. Make all setup adjustments such as table height, depth stop, and fastening material to table before machine is turned on.
12. If the drill press is equipped with a step cone pulley, set desired speed before turning the motor on.
13. Generally, large holes and hard material are drilled at slow speed. Small holes and soft materials are drilled at fast speed.
14. The bit should be withdrawn frequently when drilling large or deep holes to prevent damage to the bit.
15. Work the centres of holes with a centre punch.

DRILL PRESS – SAFE OPERATING PROCEDURES CHECKLIST Resource 3 (cont'd)

Instructions: Each item must be checked (✓) and the completed sheet signed by both the student and the teacher or supervisor. Completion of the checklist indicates basic competency in operating a drill press.

BEFORE STARTING MACHINE

- | | |
|--|----------|
| 1. Remove jewellery and secure all loose clothing. | 1. _____ |
| 2. Tie back long hair. | 2. _____ |
| 3. Wear safety clothing. | 3. _____ |
| 4. Hold work with vise or clamp. | 4. _____ |
| 5. Check speeds for size and type of metal. | 5. _____ |
| 6. Keep guards in place. | 6. _____ |
| 7. Remove key or drift from chuck. | 7. _____ |
| 8. Check with instructor for special jobs. | 8. _____ |

GENERAL SAFETY PROCEDURES

- | | |
|--|-----------|
| 1. Centre punch work before drilling. | 1. _____ |
| 2. Wear goggles. | 2. _____ |
| 3. Use sharp drills. | 3. _____ |
| 4. Centre drill over hole in table or use a piece of wood under stock being drilled. | 4. _____ |
| 5. Raise the work on table to within proper working distance. | 5. _____ |
| 6. Ensure that large diameter tools are used at low speeds. | 6. _____ |
| 7. Ensure that small diameter tools are used at medium or higher speeds. | 7. _____ |
| 8. Remove burrs with a stick or file. | 8. _____ |
| 9. Remove chips from table with a brush. | 9. _____ |
| 10. Use proper lubricant when necessary. | 10. _____ |
| 11. Do not reach behind moving parts of machine. | 11. _____ |
| 12. Tilt table if needed. | 12. _____ |
| 13. Wipe oil from table and floor. | 13. _____ |
| 14. Replace cutters in proper place after using. | 14. _____ |

I have demonstrated or completed all of the above checked items to the satisfaction of the teacher or supervisor.

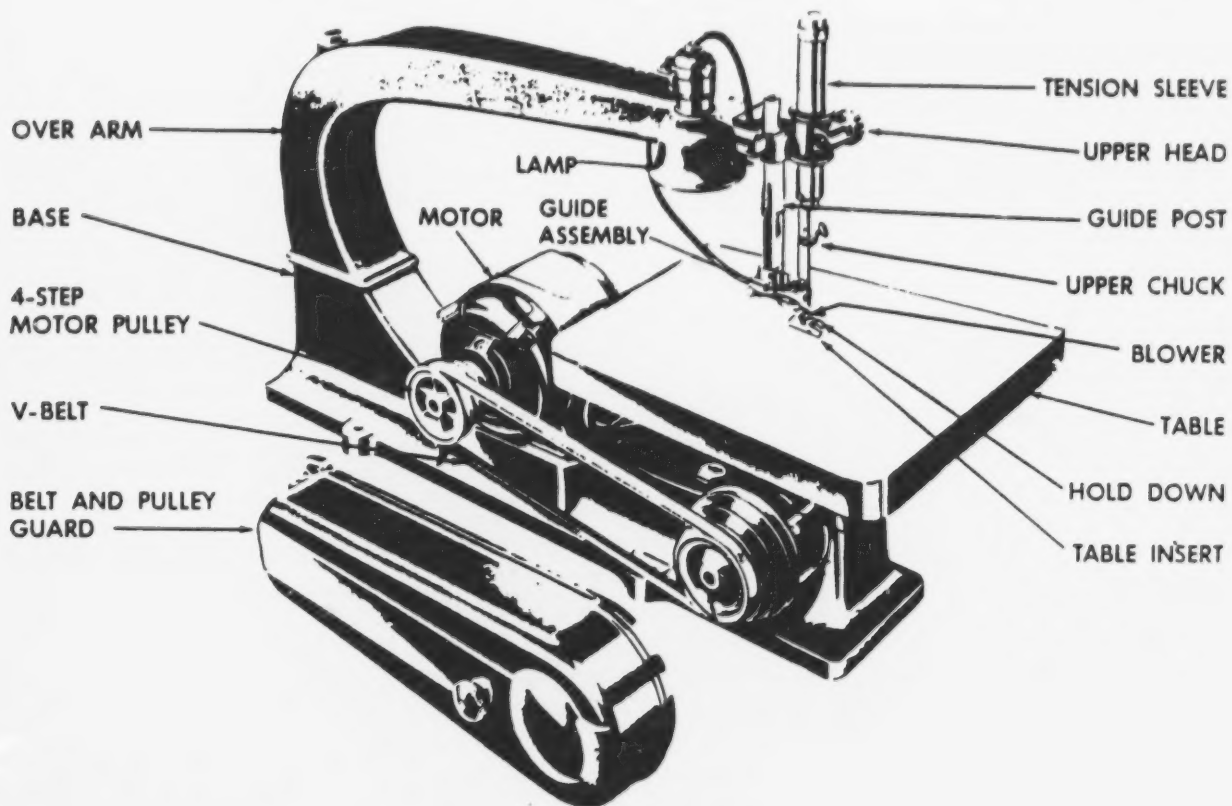
Student's Signature

Teacher's/Supervisor's Signature

THE SCROLL OR JIGSAW - SAFETY

Resource 4

1. Operate only with the teacher's or supervisor's permission and after completing the Safe Operational Procedures Checklist.
2. Remove jewellery.
3. Tie back long hair.
4. Wear safety clothing.
5. Make all adjustments with the power off.
6. Lower the hold down to press lightly on the material being cut.
7. Rotate the motor by hand to check all adjustments before turning power on.
8. Shut off power and clean machine before you leave it.
9. While cutting on the scroll saw, keep your hands away from the path of the blade.
10. When installing the blade, position the teeth down, toward the table.



THE JIGSAW – SAFE OPERATING PROCEDURES CHECKLIST Resource 4 (cont'd)

Instructions: Each item must be checked (✓) and the completed sheet signed by both the student and the teacher or supervisor. Completion of the checklist indicates basic competency in operating a jigsaw.

BEFORE STARTING MACHINE

- | | |
|---|----------|
| 1. Remove jewellery and secure all loose clothing. | 1. _____ |
| 2. Tie back long hair. | 2. _____ |
| 3. Wear safety clothing | 3. _____ |
| 4. Check blade and tension. | 4. _____ |
| 5. Test operation of machine by hand. | 5. _____ |
| 6. Adjust threshold | 6. _____ |
| 7. Get instructor's approval before starting machine. | 7. _____ |

GENERAL SAFETY PROCEDURES

- | | |
|---|----------|
| 1. Hold two hands on stock at all times | 1. _____ |
| 2. Keep hands away from blade. | 2. _____ |
| 3. Cut curves slowly and carefully. | 3. _____ |
| 4. Do not use large blade for small curves. | 4. _____ |
| 5. Do not "back out" blade from stock. | 5. _____ |
| 6. Clean off machine only when the switch is off. | 6. _____ |
| 7. Never leave the machine running. | 7. _____ |

I have demonstrated or completed all of the above checked items to the satisfaction of the teacher or supervisor

Student's Signature

Teacher's/Supervisor's Signature

THEME: Techniques with Technology
LEARNING ACTIVITY: Joining Forces: Constructing an Extension Cord
GRADE (suggested): 9
TIME (suggested): 4-6 hours

LEARNING OBJECTIVES:

The student will:

Concepts:

- understand the basic principles of making electrical connections
- recognize the need for organization and planning when producing a product

Skills:

- follow detailed instructions to produce a product
- demonstrate basic competencies in stripping, soldering and connecting electrical wire

Attitudes:

- appreciate the need for safe-use practices when working with electricity and electrical tools and appliances
- recognize a well-constructed product

RESOURCES:

Student Resources

General Industrial Education, Glencoe Publishing Company, Bennett and McKnight Division, 1988.

Correlation of Learning Activity with Student Resource

Concepts, Skills and Attitudes	<i>General Industrial Education</i>
Electricity: • Safety • Soldering • Conductors and Insulators	pp 2-4 pp 70-71 pp 10-12

Teacher Resources

Materials required for this learning activity are listed in Resource 2.
Approval of Electrical Equipment Requirements, General Safety Services Division, Electrical Protection Branch, Alberta Labour.

TEACHER BACKGROUND INFORMATION

The thematic learning activity is designed to develop students' concepts, skills and attitudes about electricity and to relate these to the world of work.

The project described in this learning activity relates to the production of an electrical extension cord. The teacher may change the project by replacing the production of the extension cord with the production of an alternative electrical product.

Student produced electrical products may be used outside the classroom or marketed upon receiving approval from the Electrical Protection Division, Alberta Labour. (See Resource 1: "Guidelines for Electrical Instruction in Schools".)

Technical/Occupational teachers who decide to include product marketing in their instructional program may integrate this thematic learning activity with the business education thematic learning activity "Operating a Small Business". Integration may be achieved through cooperative planning with the I.O.P. Business Education teacher and/or utilizing the small business learning activity within the Technical/Occupational program.

SAFETY

Review general and operational safety as outlined in the Thematic Learning Activity: "Safety – The Tools of the Trade". Review basic electrical safety as outlined in the text, *General Industrial Education*, pp. 2-4.

CONDUCTORS AND INSULATORS

A conductor is a material through which an electric current can pass easily. A list of commonly used electrical conductors is identified in *General Industrial Education*, pp. 10-13.

STUDENT ACTIVITIES

1. Discuss: "What is the difference between a conductor and a non-conductor of electricity?"
2. Have students define the following terms, obtain examples of materials that fit each description and identify where each material may be used:
 - insulator
 - solid electrical wire
 - standard electrical wire
3. Discuss: "Why is it dangerous to work with electricity or to handle electrical tools and appliances with wet hands?"
4. Discuss: "How should a first aider treat a person who has received an electrical shock?"

Community Partnerships

5. Invite an electrician to discuss and demonstrate the uses of various electrical conductors and insulators.

6. Invite the school or a local nurse, doctor or trained first aider to describe and demonstrate proper first aid for victims of electrical shock.

SOLDERING

A basic soldering technique is outlined in the text *General Industrial Education*, pp. 70-71.

(Note: The teacher should plan to demonstrate and describe the soldering process either before students commence constructing the extension cord or immediately prior to Step 5, Resource 1. Each student should be able to demonstrate safe use procedures with the soldering tools and materials prior to continuing the project.)

ELECTRICAL EXTENSION CORDS

The electrical extension cord has many uses including being used as a connector of a car's block heater to a power source, extending the range of a vacuum cleaner, etc.

STUDENT ACTIVITIES

1. Brainstorm: "How many different ways can an electrical extension cord be used?"
2. Discuss: "What should a consumer look for in a good extension cord?" "Is there a difference between an extension cord that is to be used indoors and one designed for outdoor use?"

Community Partnerships

3. Have students visit local stores and use Resource 3: "Survey of Electrical Extension Cords" to record the prices of different extension cords. Have them compare the advantages and disadvantages of two indoor and two outdoor cords.
4. Invite a representative from a local consumer's protection association, the Alberta Electrical Protection Association or other agency to discuss the merits and demerits of different types of extension cords.

In view of the increasing involvement of schools in electrical instruction, including the use and demonstration of electrical equipment and circuits as well as the construction of electrical projects, it has become necessary to establish safety guidelines applicable to the circumstances.

General Safety Regulation 49/86 of the Electrical Protection Act states, in part that electrical equipment shall be approved before the equipment is used, sold, displayed, advertised, offered for sale or distributed in Alberta and the equipment must bear evidence of having been certified in the form of marking authorized by the certification agency.

This regulation and the guidelines are applicable to electrical equipment which is to be supplied from a power source capable of presenting a shock or fire hazard. Example – a power source exceeding 30 V or exceeding a capacity of 100 V A.

It is realized that it may not always be practicable to follow the regulation to the letter, when applied to electrical instruction in schools. However, the intent of this regulation can be met by the introduction of safety procedures and adherence to the following guidelines.

1. Electrical Equipment for Instruction Purposes

This equipment is to be constructed and used in a manner which will ensure that electrical shock hazards are not presented.

2. Classroom Supervision

Students are to work under the direct supervision of an experienced instructor following safe work practices to prevent electrical shock and accidents occurring while working on experiments or projects.

3. Approval Requirements and Standards

The students need to be made aware that there are mandatory requirements for approval of electrical equipment which is administered by the Electrical Protection Branch. They should also be informed that there are electrical safety standards established in Canada for the construction of electrical equipment. Additional information is available from any Electrical Protection Branch Regional Office.

4. Students Individual School Projects

Electrical projects of an individual nature made by students to be taken home for their own use, without being approved, must be electrically safe in all respects. Under these circumstances the Electrical Protection Branch would consider that the intent of the Approval of Electrical Equipment Requirements is being met provided:

- a. the project team is constructed in accordance with the applicable Canadian Standards Association electrical standards which should be obtained by the instructor; and
- b. a prototype of the project to be constructed is submitted to the Electrical Protection Branch for examination and comment prior to proceeding with the project; and

- c. the instructor accepts responsibility to ensure that all subsequent items of the project are completed to the same electrical standards of construction.

5. Student Projects Intended to be Sold

If electrical items are being constructed with the intention of offering them for sale, the "Approval of Electrical Equipment Requirements" would fully apply. An application would need to be submitted to the Electrical Protection Branch Regional Office for special inspection of the equipment. If the items are found to comply with the applicable requirements, Electrical Protection Branch approval will be granted and approval labels applied, to identify each item as having received approval for sale and use in Alberta. A fee is charged for Electrical Protection Branch approval based on the time required to provide the service.

Materials

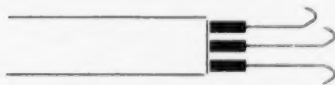
- length of 14-3 electrical cord
- set of cord ends (1 male, 1 female)
- X-Acto knife
- wire cutters
- wire strippers
- soldering equipment
- screwdriver
- needle nosed pliers

Procedure

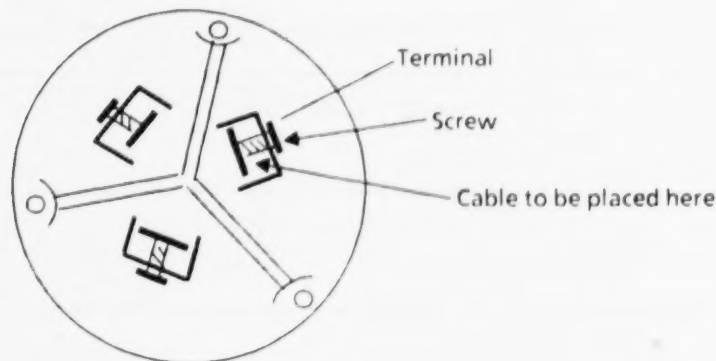
1. Obtain a length of 14-3 cord and a set of ends.
2. Use the X-Acto knife and very carefully cut through the outer covering of the electrical cord. Cut a full circle 4cm from each end. Strip off the 4cm length of the cord's outer cover.
3. Use the wire cutters and snip off the twisted paper filler cords as close as possible to the point where the outer covering was cut off.
4. Use the wire strippers to remove 12mm of the covering from the three wires at both ends of the cord.
5. Plug in the soldering gun. (The teacher will demonstrate the use of the soldering gun.)
(Note: Read *General Industrial Arts, Electricity*, Unit 18, pp. 70-71.)
6. Use a thumb and a finger to neatly and tightly twist all the copper strands into a rope-like effect on each of the stripped wire ends.
7. Bend out the three cables on both ends of the cord so they are well separated.
8. Place one end of the cord in the soldering clamp.
(Note: Soldering works best if the END of the cable points upward so the solder will work down toward the insulation.)
9. Turn off the soldering iron and apply constant contact to one of the cable ends until solder melts when touched to the copper wire.
10. When the cable is hot, apply a small amount of solder. This should produce a solid wire cable with no loose copper strands. This prevents the possibility of short circuit.
11. Repeat this procedure for all six stripped ends.
(Note: There should be no balls or lumps of solder on any of the wires. NOR should the insulation be heat damaged.)
12. Use a common (flat) type screwdriver to disassemble the male plug.
(Note: Turn screws counterclockwise to unscrew them.)
13. Slip the cord clamp section over the one end of the cord.
(Note: Bend the three cables together first.)

501

14. Check to see that the three screws in the other part of the male plug are turned fully out. These will act as clamp locks to grip the copper wire ends.
15. Study the three screws and clamps carefully. You will notice that one is GREEN, one is BRASS colour and one is SILVER colour.
16. You will attach the copper cables in the following pattern:
 WHITE – insulation to SILVER
 BLACK – insulation to BRASS
 GREEN – insulation to GREEN.
17. Use needle nosed pliers to put a rounded curve to the three soldered ends.



18. Insert the cable ends into the cord ends. Be sure to place the wire between the clamp washer and the terminal.



19. Insert the cable ends carefully in the appropriate location. Work the end down and try to have the curved end come back up so it will partly wrap around the screw.
20. Once the cable is correctly positioned, tighten the screw snugly. Repeat this procedure for the two remaining cable ends. **DO NOT ASSEMBLE THE END.**
21. Disassemble the female plug. Check the screws in the cord clamp to see they are backed out.
22. Slide the cord clamp portion of the end onto the cord.
23. Once again observe the colour of the three screws and connect BLACK coloured cable to BRASS colour, WHITE coloured cable to SILVER colour and GREEN coloured cable to GREEN colour.
24. Attach the three cables to the female end as you did previously to the male end. Be careful to place the cable ends between the terminal and the clamp. Tighten the screws.

25. Check the connections at both ends of the cord. (The teacher or supervisor should check each connection.)
26. Slide the cord clamp portion of the plug up to the main portion and assemble the plug. Do this for both ends.
27. Place one of the cord ends in the vice and clamp it carefully.

DO NOT APPLY TOO MUCH PRESSURE.

The cord should come out to the top or to the side.

28. Push the cord into the clamped end as much as possible. While holding it in that position, tighten the cord clamp screws. Tighten both screws equally.
29. Repeat Step 28 for the other end of the extension cord.
30. Check all connections and finished appearance of the extension cord.
31. Replace all tools and clean work area.
32. Evaluate your own cord and have the teacher/supervisor and your peers evaluate your work.

PROJECT EVALUATION		
NAME: _____	DATE: _____	
PROJECT: Constructing an Extension Cord		
	Possible Mark	Evaluation
Overall appearance of extension cord	10	
Connections:		
● Male end	15	
● Female end	15	
Tools returned to correct storage area	5	
Work area tidied	5	
TOTAL	50	

NOTE:

The extension cord produced must be approved before use by an authorized representative of the Alberta Electrical Standards Branch.

SURVEY OF ELECTRICAL EXTENSION CORDS

Resource 3

Visit two or more local supplies of electrical extension cords and record your observations about two different indoor and two different outdoor cords in the chart below.

Make	Length in metres	Cost	Advantages	Disadvantages
INDOOR: 1.				
2				
OUTDOOR: 1.				
2				

THEME: Techniques with Technology
LEARNING ACTIVITY: Small Engine Maintenance
GRADE (suggested): 9
TIME (suggested): 15-20 hours

LEARNING OBJECTIVES:

The student will:

Concepts:

- understand the basic differences between two-stroke, four-stroke and diesel engines
- recognize procedures used to perform basic maintenance tasks on small engines

Skills:

- demonstrate the ability to perform basic maintenance tasks on small engines
- demonstrate the ability to perform simple repairs on small engines

Attitudes:

- appreciate the value of being able to perform basic maintenance tasks on small engines
- display safety consciousness when working with small engines

RESOURCES:

Student Resources

General Industrial Education. Glencoe Publishing Company, Bennett McKnight Division, 1988

Correlation of Learning Activity with Student Resource

Concepts, Skills and Attitudes	<i>General Industrial Education</i>
Careers	p 54
Safety	pp 2, 45
Engines	pp 16-21
Ignition Systems	pp 29-32, 46, 48
Lubrication Systems	pp 35, 37, 46
Fuel Systems	pp 38-41

Teacher Resources

Pamphlets, posters and other literature is available from:

Alberta Safety Council

Canada Safety Council

Alberta Workers' Health, Safety and Compensation, Occupational Health and Safety Division

Shop manuals

TEACHER BACKGROUND INFORMATION

This learning activity will provide students with a basic understanding of how small engines work, the differences between engines, and the proper care and maintenance of small engines.

The student projects provided in this learning activity relate to the care and basic maintenance of some common gasoline powered lawn and garden equipment. The teacher may complement and supplement the projects provided with others that meet the needs of the students and are appropriate to the facilities equipment and community partnership activities available.

CAREERS

Gasoline powered engines are in common use in the home, the school, and in the workplace. Because small engines are so commonly used, there is an ongoing need for trained people to maintain and repair these engines. The ability to work on small engines may be transferable to other careers related to the transportation industry.

A career as a small engine mechanic differs from the career of, for example, a heavy duty motor mechanic or an automotive mechanic. A person who specializes in the repair and maintenance of small engines will usually work with equipment such as:

- power lawn mowers
- small tractors
- chain saws
- rotary tillers
- snow blowers and snow throwers.

Most careers as a mechanic in the transportation related industry require extensive training and usually an apprenticeship. However, a person knowledgeable and skilled in small engine repair and maintenance may find employment in a variety of occupational clusters and/or establish a small business providing these services to farmers, home owners, apartment managers, and others.

STUDENT ACTIVITIES

1. Brainstorm, identify and record:
 - a. the different gasoline-powered machines used around the house, in the school, in the workplace
 - b. the occupations, hobbies and other situations in which it is useful or necessary to be able to do basic repairs and maintenance on small engines.
2. Discuss the differences and similarities between a career as a small engine mechanic and a career as an automotive mechanic.

Community Partnerships

3. Invite small engine and automotive mechanics to describe and discuss their respective careers.
4. Arrange for students to visit a local business that specializes in small engine repairs. If possible, arrange for a job shadowing or mentorship experience for each student.

5. Encourage students to identify, and to invite to class, people whom they know to be proficient small engine mechanics and request that the guest outline their training experience and future learning and business goals.
6. Have students identify related further education courses available through local institutions. Invite the course instructor to discuss the topics covered and the career and other potential of the subject matter.
7. Invite a farmer to discuss how he or she ensures that his small power equipment is kept in good working condition.

SAFETY

Review safety information outlined in *General Industrial Education*, p. 2, and in the Thematic Learning Activity: "Safety: The Tools of the Trade".

The following safety rules should be posted in the lab and reinforced frequently:

- hands and bodies should be kept clear of a running engine
- eye protection must be worn when working with or around any engine, large or small
- long hair must be tied back off the face
- jewellery must be removed and stored in a safe place
- oil, gasoline and solvents must be handled with care and stored in a proper, protected storage area
- for one's own safety and the safety of others, work areas must be kept clean and free from debris at all times
- tools and equipment must be returned to their proper storage areas immediately after use.

STUDENT ACTIVITIES

1. Brainstorm: "What are the potential safety hazards when working on small engines?" "How can accidents be prevented when working with small engines?" (Use Resource 1: "Small Engine Maintenance" to record the responses.)
2. Working in small groups, have students simulate and role play accident causing and accident prevention behaviours.

Community Partnerships

3. Invite a representative of Occupational Health and Safety and/or the Workers' Compensation Board to discuss and describe small engine safety practices.
4. While involved in community partnership activities, have students identify, record, and share with the rest of the class, safe and unsafe behaviours and conditions they observed in the workplace.
5. Have students research the statistics related to the number of accidents that occurred on the farm, in automotive shops, and in other work areas that use gasoline powered equipment.

Small Engines

Small engines are used to perform many jobs because they are:

- compact
- lightweight
- air-cooled
- self-contained
- relatively easy to repair and maintain.

Most small engine mechanics would agree with the statements that the trouble small engines give are generally due to lack of proper service, operation, maintenance or repair.

Basic engine care involves:

- running an engine at the correct speed
- not running the engine too fast for the job it is doing
- not overloading the engine
- checking the oil level regularly (4 cycle engines)
- clearing out dust that may have entered the engine
- checking regularly for loose, worn and damaged parts
- keeping the piece of equipment that the engine powers clean.

Categories of Small Engines

Small engines are made to power a variety of equipment. For this reason, the basic small engine is adapted to suit the tool it needs to power. For example:

- **Vertical crankshaft engines** have crankshafts that operate in a horizontal position. These engines are usually found in simple lawn mowers.
- **Horizontal crankshaft engines** have a crankshaft that may be in a vertical, a horizontal or some position in between the vertical and horizontal. These engines are found in small tractors.
- **Multi-position crankshaft engines** have a crankshaft that is versatile. These engines are used in equipment such as the chain saw.

The Workings of a Small Gasoline Engine

Small gasoline engines work in four-stage cycles:

- Stage 1 Taking in a fuel-air mixture
 - Stage 2 Compressing the fuel-air mixture
 - Stage 3 Creating power by igniting the fuel-air mixture and causing it to heat and expand
 - Stage 4 Giving out an exhaust of the burned gases that result from the ignition of the fuel-air mixture
- (See Resource 2: "Small Engine Operating Cycle".)

As an engine goes from Stage 1 to Stage 4, one cycle is completed. A well-maintained engine will automatically move from one cycle to another as long as fuel is available.

2-Stroke and 4-Stroke Engines

2-stroke small engines are designed to complete the cycle during one revolution of the crankshaft. 4-stroke small engines complete two cycles during one revolution of the crankshaft.

Before attempting to service a small engine it is important to identify the type of engine – 2-stroke or a 4-stroke.

Both two- and four-stroke engines are used to power small equipment. The major differences between the two types of small engines are shown in Resource 3.

Recognizing Parts of a Small Engine

In order to service any type of engine, the service mechanic must be able to recognize the various parts of the engine and their location.

STUDENT ACTIVITIES

1. Demonstrate and then have students practise the proper procedure to follow when disassembling a 4-stroke small engine (see Resource 4: "Disassembling and Identifying Parts of a 4-Stroke Small Engine").
2. Discuss the advantages and disadvantages of using 2-stroke and 4-stroke small engines.
3. Have students identify and categorize engines contained in the lab and small engine powered equipment used around their home.

Community Partnerships

4. Invite a small engine service mechanic to demonstrate and discuss the basic care, maintenance and service procedures of small engines.
5. Have students visit hardware and lawn and garden equipment suppliers and manufacturers and identify the different makes, types and cost of small engine powered equipment.
6. Arrange community partnership experiences (field trips, job shadowing, etc.) that facilitate increased student's awareness about small engine care, operation, maintenance, sales and service.

Small Engine Care and Maintenance

Care and maintenance of any small engine should be a regular and ongoing process. An engine that is regularly serviced will provide more efficient and long-lasting service than an improperly and irregularly serviced engine.

Basic care and maintenance may include:

- removing dirt from the visible areas of the engine
- checking the ignition system (Resource 5)
- checking the fuel system (Resource 6)
- changing the oil (Resource 7)

Maintaining Gasoline Powered Equipment

A variety of equipment may be serviced and/or repaired in the lab. A customer service program can facilitate increased student awareness and skill development as well as integrate the resources of the community with the educational program.

When operating a customer service program, care should be taken to ensure that each student is permitted to work on customer's equipment that is within his or her knowledge and capability. At the junior high school level, the following equipment is not recommended to be taken in for customer service work:

- 2-stroke cycle engines
- multi-cylinder engines
- hydrostatic drives
- motorbikes, TVs, snowmobile, outboard engines
- chain saws
- other equipment for which appropriate service manuals and tools are not available.

The following resources may be used to review basic maintenance procedures:

Resource 8: "Lawn Mower Maintenance"

Resource 9: "Snow Thrower Maintenance"

Resource 10: "Rotary Tiller Maintenance"

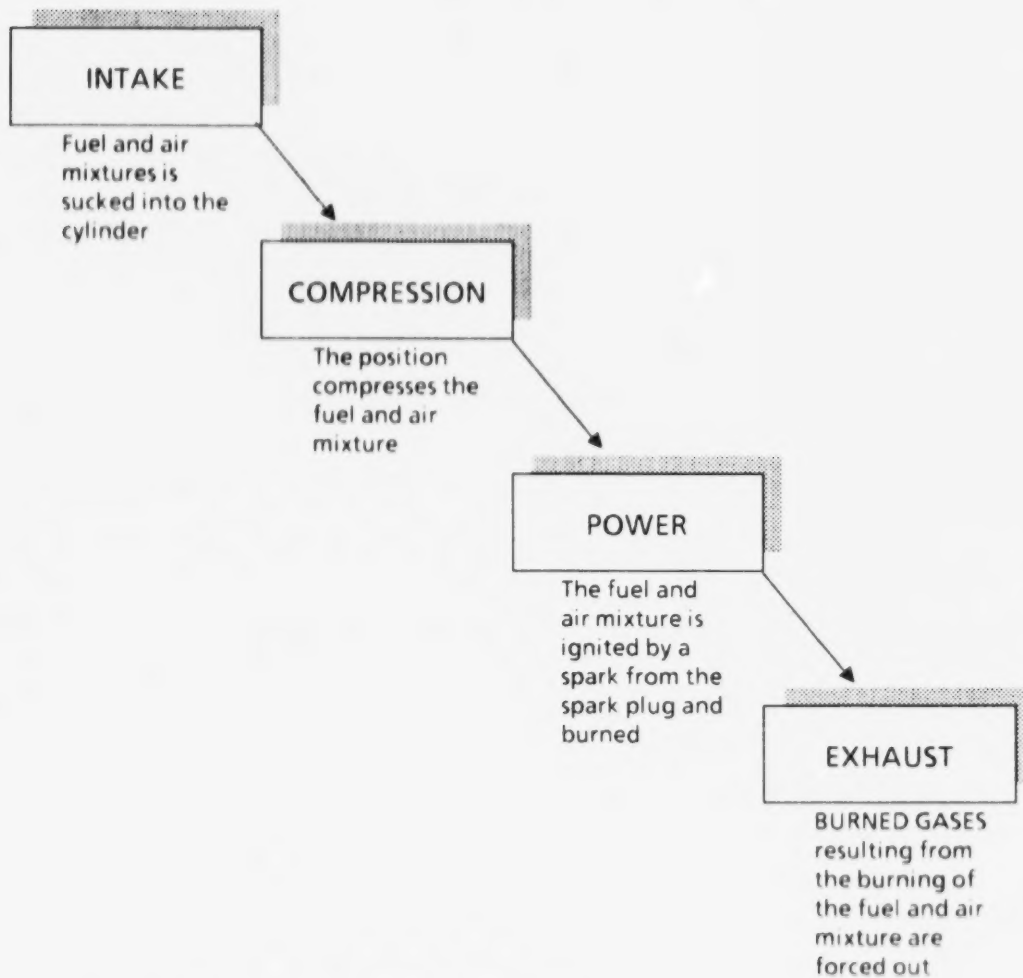
SMALL ENGINE MAINTENANCE
Accidents and How to Prevent Them

Resource 1

Type of Accident	Method of Prevention
1.	1. a. b. c. d.
2.	2. a. b. c. d.
3.	3. a. b. c. d.
4.	4. a. b. c. d.
5.	5. a. b. c. d.

A SMALL ENGINE OPERATING CYCLE

Resource 2



2-Stroke Engines: 1 cycle = 1 revolution of crankshaft = 2 strokes of piston

4-Stroke Engines: 1 cycle = 2 revolutions of crankshaft = 4 strokes of piston

Engine Characteristics	2-Stroke Engine	4-Stroke Engine
A cycle equals	● one revolution of the crankshaft ● two strokes of the piston	● two revolution of the crankshaft ● four strokes of the piston
Lubrication	Oil and gasoline are mixed and stored in one storage tank	Oil is stored in an oil sump
Fuel	Gasoline is usually mixed with oil and stored in the same storage tank. Note: If an oil/gasoline mixture is not put in a 2-stroke engine, the engine will over heat and seize	Gasoline is stored in a gas tank Note: If an oil/gasoline mixture is put in a 4-stroke engine, the engine will over heat because of improper lubrication
Recognizing Different Engines	● check name plate or operators manual ● one filler cap for oil/gasoline mixture	● check name plate or operator's manual ● two filler caps – one for oil – one for gas ● exhaust muffler connects at cylinder head end of the engine cylinder

Materials

- small 4-stroke engine
- operator's or service manual
- trays to hold nuts, bolts and other parts
- appropriate tools
- oil container
- solvent, rags, small paint brush

Procedure

1. Clean all visible surfaces of engine using a solvent, rags and brush.
2. Identify and recall the following information:
 - type of engine _____
 - make and model _____
 - number of cylinders _____

(Note: The teacher or supervisor will check to see if the engine is operational)

3. Identify the following parts.

	Located Near:
● Air cleaner	
● Fuel line	
● Fuel filter	
● Cylinder head	
● Flywheel	
● Magneto	
● Bearing plate	
● Muffler	
● Carburetor	
● Spark plug	
● Valve cover	
● Intake manifold	

4. Drain crankcase oil into oil container.
5. With the teacher's or supervisor's assistance remove and check:
 - carburetor assembly
 - air cleaner
 - spark plug
 - flywheel cover
 - gas tank
6. With the teacher's or supervisor's assistance remove, inspect and clean the engine head and engine block.
7. Clean all parts disassembled.
8. Reassemble.
9. Clean up work area.
10. Return materials to their proper storage areas.

Safety Note: Ignition systems produce strong electrical currents that can prove harmful. Do not touch any part of the ignition system when the engine is running.

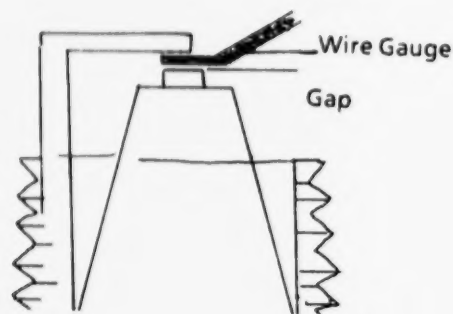
Materials

- operator's or service manual
- spark plug deep sockets
- T-handle
- torque wrench
- wire feeler gauge
- ignition file
- wire brush
- solvent, rags, small paint brush

Procedure

A. Checking the Spark Plug

1. Disconnect the spark plug wire from the spark plug.
2. Loosen plug one or two turns. Remove dirt by blowing and brushing. (Note: Use a spark plug socket wrench that fits the plug. Do not use an open-end wrench or a box-end wrench or pliers. These may crack the spark plug. **ALWAYS USE THE PROPER TOOL FOR THE JOB.**)
3. Remove the spark plug.
4. Check the spark plug gap with the wire gauge. The wire gauge should pass through the gap with a slight drag.

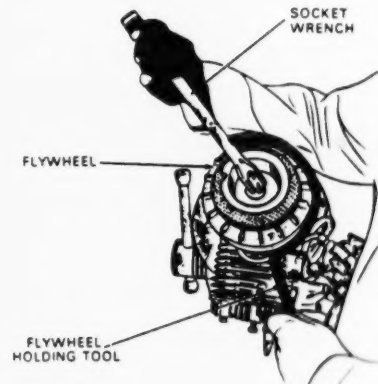


5. Place the spark plug wire on the plug and lay the plug against the block. Make sure your fingers are clear of the plug terminal. Crank the engine and observe the spark at the plug. There should be a sharp blue spark. If there is a dull reddish spark - or no spark at all - there is a problem with the ignition system.
6. Check the kill switch. With the switch on, there should be no spark. Adjust if necessary.

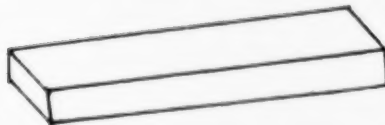
7. Check the compression by holding a thumb over the spark plug hole while cranking the engine. If working properly, the thumb should feel as if it were being blown away from the spark plug.

B. Check the Points

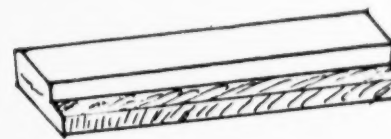
1. Remove the top sheet metal cover - the SHROUD.
2. Remove the flywheel nut car starter clutch.



3. Check to see if the KEY is distorted. (The key is the metal bar that locks the flywheel to the crankshaft.)

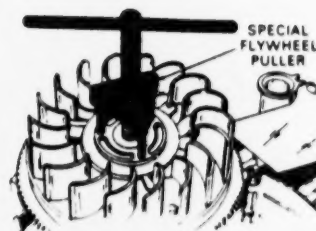


Normal Key



Distorted Key

4. Remove the flywheel.



5. Check the flywheel magnet by placing a 1.25cm socket on the magnet and shaking the flywheel. The magnet should hold the socket under moderate shaking.
6. Remove the point cover. The point faces should be grey in colour and smooth. Point faces that are blue, black or badly pitted should be replaced. Slight pitting may be repaired by gently drawing an ignition file between the faces.
7. Check the alignment of the point faces. (Note: On Briggs and Stratton engines, the plunger should be removed and checked for proper length.)
8. When points have been replaced or adjusted, check the wire routing to ensure that wires will not be caught and damaged by moving parts.
9. Replace the point cover. If it does not have a sealing gasket, seal the cover with a silicon type sealer.
10. Install the flywheel. Use a new key if the old one is distorted. (Note: On the Briggs and Stratton engines with a flywheel which is held in place by a starter clutch assembly, pry the cover off the assembly, clean and lightly oil the steel balls and reinstall cover. Remove any burrs on the centre piece with a file. Lubricate the end of the crankshaft to prevent binding. Make sure the flywheel is securely tightened)
11. Replace the shroud.
12. Check the spark out by:
 - connecting the spark plug wire to the spark plug
 - laying the spark plug against the block
 - turning the engine over with the pull-cord.

The spark should be blue in colour and make a crisp, snapping noise.

(Note: Do not touch the spark plug during the checking procedure. Remove spark plug wire from the spark plug when check is completed.)

13. Clean up work area.
14. Return all materials to proper storage areas.

Safety Note: Gasoline is a hazardous substance. Handle with care and wipe up spills immediately.

Materials

- open-end wrench
- combination pliers
- solvent, rags, paintbrush
- pan for cleaning parts in solvent

Procedure

1. Check the fuel tank for leaks or rust. Look in the tank. If there are jelly-like lumps on the bottom of the tank, there has been water in the fuel.
(Note: Materials from the fuel tank must be put into a special safe-disposal drum or other similar containers.)
2. Remove and service the air cleaner:
 - paper type is cleaned with a light blast of compressed air
 - foam type is cleaned by washing in warm, soapy water and rinsing thoroughly. Lightly oil, squeeze out excess oil and replace.
3. Check gaskets and seals for leaks and damage.
4. Check choke operation. (The teacher or supervisor will demonstrate the proper procedure.)
5. Check for fuel flow when cranking. (The teacher or supervisor will demonstrate the proper procedure and special safety precautions that need to be taken.)
6. Clean the exterior of carburetor with a non-flammable solvent and a brush.
7. Remove and clean the float bowl (if present). (Note: Follow safe procedure for disposing of unwanted gasoline.)
8. For Briggs and Stratton engines, remove the carburetor diaphragm and clean or replace.
9. Attach exhaust pick-up hose.
10. Start engine and run until warmed up. (Note: DO NOT START THE ENGINE WITHOUT THE TEACHER'S OR SUPERVISOR'S PERMISSION.)
11. Adjust the carburetor. (The teacher or supervisor will demonstrate and describe the proper procedure.)
12. Turn-off the engine and drain fuel. (Note: Follow safe procedure for handling gasoline.)
13. Start engine, with teacher's or supervisor's permission, and run until fuel tank is dry. (Note: Leaving small amounts of fuel in the fuel tank leads to a buildup of sludge in the fuel system.)
14. Clean up work area.
15. Return materials to their correct storage areas.

Safety Note: Oil is a hazardous substance. It should be handled with care and caution. Always wipe up oil spills immediately to prevent injury to self and to others.

Materials

- service manual
- appropriate grade oil
- rag
- drain pan

Procedure

1. Remove oil drain plug and drain oil into drain pan.
2. Replace and tighten drain plug and wipe plug area to remove oil splatters.
3. Remove the upper filler plug and, using a funnel, pour the oil into the engine until out past the lower edge of the fill hole. Wait one minute and add more oil until oil level does not change.
4. Replace upper filler plug.
5. Obtain permission from the teacher or supervisor to start the engine and run until warm.
6. Check oil level (some engines may be equipped with the dipstick usually attached to the upper filler plug). Add oil if necessary. (Repeat Step 3.)
7. Replace upper filler plug.
8. Check for leaks.
9. Clean up work area.
10. Return materials to correct storage and disposal areas.

Materials

- operator's manual or service manual
- appropriate hand tools
- solvent, rags, brush

Procedure

1. Remove the spark plug and ground the spark plug wire.
2. Clean the surface area of the mower.
3. Remove the blade and clean.
4. Check the blade hub and key for wear or damage.
5. Sharpen the blade with a file.
6. Balance the blade by supporting the middle of the blade (by the bolt hole) on a finger. When balanced, the blade should sit level. If it is not balanced, continue sharpening on the correct side and recheck until properly balanced.
7. Check wheel condition. If wheels are badly damaged they may need to be replaced. If they are loose, they may need to be tightened.
8. Check height adjusters for damage and for smooth operation.
9. Check handles of mower for proper operation and missing parts.
10. Check belts for cracks, fraying and wear.
11. Perform basic maintenance services:
 - clean all parts
 - change oil
 - service air cleaner
 - clean and adjust spark plugs
 - with the teacher's or supervisor's assistance, adjust the carburetor
 - test run engine.
12. Replace all parts disassembled.
13. Check appearance of mower.
14. Complete work order if a customer service project.
15. Clean up work area.
16. Return materials to their proper storage and disposal areas.

Materials

- operator's or service manual
- appropriate hand tools
- solvent, rags, brush
- lubricant

Procedure

1. Remove spark plug and ground wire.
2. Check main auger.
3. Lubricate all shafts and bearings
(Note: Check operator's or service manual for type of lubricants.)
4. Check belts for cracks, fraying, and wear.
5. Adjust belts under the teacher's and the supervisor's direction.
6. Check chain drives and sprockets for damage.
7. Adjust chain under the teacher's or the supervisor's direction.
8. Check all switches; e.g., kill switch, deadmen's clutch.
(Note: Engine should shut off as soon as kill switch is depressed.)
9. Check oil levels in transmission/final drive.
10. Check tires and tire chains.
11. Perform basic maintenance services:
 - clean exterior
 - change engine oil
 - service air cleaner (if present)
 - clean and adjust spark plug
 - adjust carburetor with the teacher's or supervisor's assistance
 - test run the engine
12. Check appearance of snow thrower.
13. Complete work order if customer service project.
14. Clean up work area.
15. Return materials to their proper storage and disposal areas.

Materials

- operator's or service manual
- appropriate hand tools
- lubricants

Procedure

1. Remove spark plug and ground spark plug wire.
2. Check tires, sharpen with a file if necessary, and tighten.
3. Check belts for cracking, fraying and wear.
4. Check chain-drives for damage and adjust chain.
5. Lubricate all shafts and pulleys.
6. Check oil levels in transmission and drive.
7. Check wheels for mounts, cracks or other damage.
8. Check handle for loose or missing parts.
9. Perform basic maintenance services:
 - clean exterior
 - clean engine
 - change engine oil
 - service air cleaner
 - clean and adjust spark plug
 - adjust carburetor
 - test run the engine.
10. Check appearance of the rotary tiller.
11. Complete work order if a customer service project.
12. Return materials to their proper storage areas.